The OIL and GAS JOURNAL
PRODUCING REFINING MARKETING

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Big Drop Recorded in Crude Production

Average daily production in United States week ending Oct. 6, 2,184,003 bbls.

California Output Declines Nearly 16,000 Bbls. Daily. Prices Reduced There With New Schedules in North and Central Texas.

Loss in daily production in United States week ending Oct. 6, 60,282 bbls.

By Andrew M. Rowley

There were numerous evidences of improvement in the crude petroleum production situation throughout the United States during the past week. In the first place, the daily average production of the entire country showed a decrease of 60,282 barrels, the greatest decline registered in many months. In this connection, the Santa Fe Springs Field in California fell off 25,000 barrels a day, indicating the town lot drilling in that area is beginning to have its effect. This is shown, too, in the fact new producers in that field fail to measure up to the wells brought in earlier. The Government figures, just available, show that the crude stocks of the country increased only 3,892,041 barrels during August as compared to an increase of 11,786,654 barrels in July and an approximate 10,000,000-barrel increase monthly since last February.

The price of crude was reduced in California on Tuesday, the reduction ranging from 2 cents a barrel on oil ranging from 22 to 22.9 degrees up to 28 cents on crude of 35.9 degrees gravity and above. The reduction in price of California crude is regarded as of the utmost importance to the industry throughout the United States. Crude of 35.9 degrees and above is selling now in California at 76 cents a barrel. With the high cost of drilling wells in that territory, the reduction may have some effect in curtailing unnecessary drilling operations. At the same time, it will place a further burden on Mid-Continent producers in that it makes it harder for them to dispose of their crude to the Eastern markets.

New Prices in Texas

On Tuesday, The Texas Company also announced a new schedule of prices for North and Central Texas, the new price really being a reduction from prices posted by the Prairie Oil & Gas Company. Crude below 33 gravity remains unchanged in price. That ranging between 33 and 39.9 degrees is quoted by The Texas Company at $1.10 a barrel ,a reduction of 20 cents a barrel from the Prairie prices. Crude of 40 degrees and above is quoted at $1.25 a barrel, a cut of 50 cents a barrel from the Prairie quotations.

The Humble Oil & Refining Company also announced a new schedule of prices effective Monday of this week. Crude testing 30 degrees or lower is quoted at 90 cents; that from 30 to 32.9 degrees at $1.10, which is an increase of 20 cents a barrel above the Prairie prices; from 33 to 35.9, the new price is $1.20, which is a cut of 10 cents from Prairie prices; from 36 to 38.9, a price of $1.35, which is an increase of 5 cents; and 39 and above, $1.50, which is a reduction of 25 cents.

One encouraging feature of the announcement of the Humble Oil & Refining Company and The Texas Company is that these concerns now will buy all oil they run, in other words, proration in the Texas districts affected by the new schedule of prices is now a thing of the past as far as these companies are concerned, if the producers desire to sell at the prices quoted. The Humble also announced it would purchase all the oil it has stored for producers since August 19.

Santa Fe Springs Drop Expected

The decline in the production of the Santa Fe Springs Field has been expected. Operators in close touch with the situation have felt the close drilling of the field would soon result in the big flush production dropping and it is expected there will be a steady decline in output in that area. Long Beach is showing a steady increase in production, due to the development of a deeper sand there while new operations at Torrance are bringing the output of that field up. However, Torrance and Compton are controlled largely by the large oil companies who can be depended upon to conserve the oil there and not start any town lot drilling proposition. The production of the entire State of California showed a decline of 15,700 barrels daily during the past week.

The largest decrease in output was recorded in the Wyoming-Montana area where flood conditions have hampered operations and the running of crude. The decline there amounted to more than 32,000 barrels daily. The Powell Field in East Central Texas jumped to 180,000 barrels daily at the close of the week but the daily average for the week was only 1,765 barrels greater than for the week before. Arkansas fell off, the heavy oil district there declining 10,000 barrels a day while northern Louisiana also showed a decline of slightly more than 1,000 barrels daily. Oklahoma continues its steady decline registering a drop of a little more than 2,000 barrels daily.

PRODUCTION IN THE UNITED STATES

Estimated daily average production in the oil fields of the United States for the week ended October 6, and a comparison with the previous week follows:

Field	Oct. 6	Sept. 29
Oklahoma—Northern Fields:		
Tonkawa	56,501	55,649
Burbank	95,912	99,416
Other Osage Fields	28,850	29,650
Cushing and Shamrock	24,475	24,490
Bristow and Eastern Bristow	47,500	47,200
Northern Miscellaneous	84,725	84,670
Southern Fields:		
Healdton	17,200	17,015
Hewitt	22,100	21,500
Southern Miscellaneous	25,450	25,470
Total Oklahoma	402,713	405,060
North Louisiana	58,175	59,455
Arkansas—		
El Dorado	11,490	11,530
Smackover Light	15,115	12,755
Smackover Heavy	85,430	95,435
Other Arkansas Fields	10,765	10,890
Total Arkansas	122,800	130,610
North Central Texas	111,855	113,690
East Central Texas (Mexia, Currie, Corsicana, Powell)	218,965	217,225
Kansas	73,100	72,750
Total Mid-Continent Area	987,608	998,790
Gulf Coast	98,500	99,200
Eastern	111,015	111,075
Wyoming-Montana	135,580	168,220
California—		
Santa Fe Springs	300,000	325,000
Long Beach	250,000	240,000
Huntington Beach	85,000	90,000
Torrance	12,000	9,000
Compton	1,300	1,300
Remainder State	203,000	201,700
Total California	851,300	867,000
Total United States	2,184,003	2,244,285

Decrease, 60,282 Barrels

Oklahoma

Little out of the ordinary developed in Oklahoma during the past week. In the Wewoka Field, where interest has centered during the past few weks, the drilling deeper of some wells already classed as producers resulted in an increase in production. In other sections, new work continued to slump. Deeper drilling of the Producers & Refining Corporation's No. 1 Foster at Wewoka resulted in much of the increased production of that field during a few days, the well making 5,700 barrels for a day and then dropping to 2,900 barrels. It is expected when conditions improve the shallow districts of eastern and northeastern Oklahoma will experience a period of deeper drilling. A gradual increase in runs by the Prairie Oil & Gas Company in the older areas of Oklahoma and the announcement by the Empire Pipe Line Company that it had lifted its proration in the Healdton Field were taken as indications of a growth of optimism on the part of purchasers of crude in the Mid-Continent territory.

East Central Texas

Numerous completions in the Powell Field caused production there to take quite a spurt last week, it jumping from 162,225 barrels daily the first of the week to 180,000 barrels a day last Saturday, for an average for the week of 170,115 barrels. Brooks and others completed one of the largest wells of the week on the Cerf farm, Smith survey, in the southwestern side of the district, it starting at 5,600 barrels a day. The Humble Oil Company brought in its No. 2 Cerf good for 7,200 barrels initial. Twelve wells were finished during the week for a total initial production of 52,900 barrels.

California

More optimism is apparent in regard to the production situation in California. There is a feeling conditions there are becoming more stabilized. With the drop of 25,000 barrels daily recorded last week at Santa Fe Springs and a feeling that the fields at Torrance and Compton will be developed along conservative lines, operators are turning their attention to Long Beach, where the development of a deeper sand is responsible for the increase in output of that field. While production figures for September are expected to show an increase over those for August, the figures do not really represent conditions as for several weeks pipe lines have been taking maximum production from three principal fields which they had not been doing for several months previously. While the potential production has decreased probably 50,000 barrels a day, the actual production will show an increase under the unrestricted pipe line runs. Recent completions at Santa Fe Springs have shown a decided falling off in flush production, due to decreased gas pressure. A check of several recent new wells shows declines in production ranging from 25 to 75 per cent as compared to earlier completions. There were only two good wells completed in the field last week.

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WESTERN PETROLEUM REFINERS HOLD SEMI-ANNUAL MEETING

At the semiannual meeting of the Western Petroleum Refiners' Association, held Tuesday and Wednesday at Tulsa, R. R. Irwin, vice president of the White Eagle Oil & Refining Co., addressed the association on "Are Present Prices Based on Gravity Equitable When Compared to Yields?" This address will be found in the Group 3 market report on page 26. Kred Kontz, superintendent of the Cosden & Co. refinery, West Tulsa, spoke on "Refinery Processes and Yields From Various Grades of Crude."

The outlook of the oil industry is bright, provided the industry benefits from past experiences, according to F. A. Pielsticker, vice president of the Skelly Oil Co., who addressed the refiners on "Outlook." Stabilization of crude and refined products prices, he said, was the one most important development needed. This could be obtained by both producers and refiners controlling their operations to meet the needs of consumption.

Myers Gross, sales manager of the Sterling Oil and Refining Co. was unable to be present but his paper on "Sales" was read Wednesday. Mr. Gross stressed the importance of the human elemena in refinery sales, saying his own experience had convinced him friendship played a very important part. He said the refinery sales departments were probably more inadequate than in any other line of business.

Advocates Publicity

W. B. Hamilton, president of the Texhoma Oil and Refining Co. spoke on "Production Costs and Relation of Producer to Refiner." Mr. Hamilton gave figures showing present crude prices were below cost of production. His own company had found it cost $1.14 a barrel to produce oil in the North Texas fields. This did not include the cost of drilling dry holes and wildcat leases. Costs were greater to many other companies.

He stressed the mutual dependence of independent refiners and producers in the Mid-Continent Field and deplored the tendency to disregard the well being of the other. He said crude prices had been reduced too much during the past few months.

He advocated a concerted campaign to bring before the public the real conditions within the oil industry. He said data giving actual costs entering into the production, refining and marketing of oils should be compiled and presented in a comprehensive manner to the public.

Warns Railroads

P. M. Miskell, general manager, Empire Refineries, Inc., said:

"There are conditions existing today which are contributing greatly to the adverse conditions in the Mid-Continent refining group. Other refining centers are being built up on account of the more advantageous freight rates they enjoy.

"What is more important to this group of refiners than a correction of this situation? And is it not of the same importance to the carriers, for have we not seen, during the last five years, the shifting of manufacturing facilities to points of distribution with pipe lines carrying crude to these plants, and, if these rate conditions continue to exist, will we not see more extensions to pipe lines, more refineries in distribution centers, more idle refineries in this group, and the tonnage gone forever as far as the railroads are concerned."

Shreveport Meeting, Mid-Continent Oil And Gas Association

SHREVEPORT, La., Oct. 6.—The annual meeting of the Louisiana-Arkansas division of the Mid-Continent Oil & Gas Association, held at the Hotel Youree, last night, was opened by City Attorney B. F. Roberts, in behalf of the city.

Following the banquet a meeting of the executive committee was held at which J. R. Munce, vice president of the Arkansas Natural Gas Co., was elected president of the Louisiana-Arkansas division, succeeding C. M. Bennett, with other officers for the ensuing year as follows:

Vice presidents, C. D. Keen, president of the Shreveport Producing & Refining Co.; C. R. Minor, vice president of the Gulf Refining Co.; J. R. Crawford, president of Crawford & Sebastian; George O. Baird, independent operator and recently receiver of the Gilliland Oil Co., treasurer; Ben Johnson, president of the Commercial National Bank; and Secretary J. B. Elam, reelected.

The new executive committee follows: R. E. Allison, George O. Baird, George Belchis, Clyde M. Bennett, C. W. Brown, C. K. Clark, C. P. Clayton, E. M. Courtney, J. R. Crawford, Walter George, Bradford Hearn, O. L. Hickman, Harley R. Hinton, E. D. Holcomb, Ben Johnson, C. D. Keen, C. R. Minor, J. R. Mune, A. M. McCorkle, N. C. McGowan, F. Ray McGrew, E. R. Ratcliff, D. C. Richardson, Elton Rhine, C. W. Robinson, R. O. Roy, B. L. Ryan, William (Dick) Sebastian, J. Y. Snyder, B. S. Soelle, A. H. Tarver, A. S. Warren, L. S. Westcott, D. R. Wilson and R. W. Howe.

The legal committee consists of H. C. Walker, J. S. Atkinson, W. C. Barnette, Thomas J. Gaughan, T. E. Gilmer, E. P. Lee, J. K. Mahoney, T. M. Milling, W. E. Patterson, W. M. Phillips, J. Crea Pugh, W. B. Smith, J. E. Smitherman, Hampden Story and J. B. Files.

"O. C." IS A LIVE WIRE

O. C. Staples

O. C. Staples, better known as "O. C." but also yclept "Osage," and sometimes dubbed "Stape," is the manager of the machinery department in the mid-western part of the country for the Frick-Reid Supply Co. He spent a month in Tulsa before the convention gathering the material and arranging the wonderful exhibit in the Frick-Reid building. To him can be attributed the success of the Frick-Reid showing.

"O. C." is known throughout the Mid-Continent as a builder of powers. He confesses that he drew the first pay check given by Frick-Reid back in 1905, and is Oil City bred and broke.

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DRESSER COUPLED PIPE LINES insure against leakage losses and interrupted service. Their higher efficiency would justify an installation cost much in excess of that of other types of construction, but, on account of the great convenience and ease in which they may be laid, the construction cost of DRESSER COUPLED PIPE LINES is remarkably low.

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THE PETROLEUM EXPOSITION

The International Petroleum Exposition and Congress being held at Tulsa this week is a revelation, even to the oil industry. The exhibition of oil operations, machinery and supplies has been on a scale commensurate with the purpose to make this a genuine world's exposition of petroleum. Visitors drawn from all over the country and from far-off fields declared themselves well repaid for their journey, while the general public found the Exposition a veritable education.

Nor were the various meetings of the Congress less interesting and educative. Every branch of the industry was represented, producing, refining and marketing, the technologists as well as the geologists, field workers and refinery workers, all contributing of their knowledge to the common fund of information and the broadening of the viewpoint of the whole industry.

One thing the Exposition and Congress has already accomplished that alone made it worth while. It has convinced everyone of the value of such get together gatherings and the exchange of viewpoints by the many factors in the business. It cannot fail to inspire a greater sense of solidarity in the industry. It lifted the view from the local and circumscribed consideration begotten of individual or special interests into a conception of the industry as one great organization in which each factor is interdependent and its fortune bound up with the success of all.

Many of the addresses, dealing with general principles, will create discussion, but they will provoke thought and, regardless of the opinions of the speakers, must stimulate a deeper interest in the problems of the industry. This is a distinct advantage, infinitely preferable to set speeches.

That the Exposition and Congress will be continued from year to year is now accepted as the necessary outcome of this first session which necessarily was largely experimental. Tulsa as the Oil Capital will henceforth be more than ever the meeting point for oil men drawn in increasing numbers by the reports of those who have enjoyed this year's first Exposition.

WHAT THE PUBLIC SHOULD BE TOLD

The idea of having the oil industry get its case before the people by distribution to its 13,000,000 customers at the filling stations throughout the country, suggested in an editorial in the Petroleum Exposition Number of The Oil and Gas Journal, has been generally approved as the most direct and practical contact with the public, but it has been asked would the people believe it, or would they simply look upon it as "a trick of the Standard?"

This criticism was fully anticipated when the proposal was offered. There can be no doubt there is this attitude of suspicion among the public, but that is just so much more reason for united effort by the industry to remove it. The "independent" is not going to help himself by holding aloof and lamenting that the public will think it "a dodge of the Standard." If Congress adopts laws that will injure the industry they will hit the "independents" as well as the Standard and probably hit the "independents" harder because they lack the resources of the larger companies.

On the contrary, it should be the special business of the "independent" to lend the weight of his "independence" in winning a public hearing for the oil business, not the case of the Standard or of the "independents," but of the industry all around.

Everyone within the industry expects this Congressional attack and dreads it. Are we to meet it lying down, crying that they are shooting at the Standard, not at us? If the oil business is shackled with Governmental control and political regulations there will be small consolation and certainly no profit for the "independents" in the thought that they are suffering for others' sins.

The immediate thing to do is to forget these quarrels within the industry in the face of the common menace. If popular sentiment is so strongly prejudiced against the oil business as said, that is certainly going to encourage the politicians to continue attacking it. The only hope of salvation for the industry is to convice the public it has a side worth hearing.

But, it will be said, how can that be done? There is just one way and that is for the industry to get together and agree upon a statement of basic facts about the oil business that will defy contradiction.

Impossible, it may be said, but surely not if the men in the oil business have the good common sense they are usually credited with possessing. The folly of "cutting off one's nose to spite one's face" is proverbial. Leaders in the industry worked together during the war. Cannot they be induced to do so again in the presence of another emergency which directly threatens their own business? Would not a statement of the industry's case, made and signed by the leading men in both Standard and independent oil companies, be accorded at least a reading by the American public?

What should such a statement contain? Certainly not glittering generalities and protestations of good faith unsupported by evidence. It should be short, pithy and pointed, telling the gasoline consumer what he ought to know.

He should be informed that the gasoline he is buying came from wells that cost, taking the country over, an average of $25,000 to complete.

He should learn that, according to Ida Tarbell, whom even the most inveterate foe of the Standard will accept as a witness, "the total cost of the 550,000,000 barrels of crude oil produced in this country last year was $834,273,000, for which $775,000,000 was realized—a loss to the producing branch of the business for the year of $59,273,000!"

He may be surprised to find that the Standard of California spent $1,000,000 drilling five dry holes, one of which cost $300,000; that 5,406 dry holes were drilled in the United States last year and that the one thousand of these in the State of Texas cost operators there $15,000,000.

He should be shown that to care for the flood of California oil more than 75,000,000 barrels of tanks and storage had to be constructed, involving an expenditure of $40,000,000, and that storage adds a cost of 75 cents a barrel to oil put in tanks and 35 cents a barrel to that stored in reservoirs.

Among other facts he should know are that while drilling a well in the East costs $5,000, in Oklahoma it costs from $35,000 to $45,000 and in California, because of the depth, from $50,000 to $60,000 and above.

The average lifting cost is estimated by the United States Bureau of Mines at 82 cents a barrel. Add to this the cost of the leases, some running to $1,000,000, the cost of networking the country with 55,000 miles of pipe line from the Mid-Continent and Rocky Mountains to the coast, more than enough to go around the earth twice; the investment in storage, in refineries, in tank cars, in trucks, and last of all, in filling stations at every important cross roads or convenient street corner, and the product of all this risking of capital in the most uncertain industry in the world, all this complicated and extended labor and enterprise, is at the instant demand of the motorist for a few cents a gallon.

Having thus laid the basic factors before the public, and showing that despite the present temporary flood of California oil, the motorists of the country are dependent for their gasoline upon the 250,000 settled producers averaging two barrels a day out of a total of 285,000 wells, ask these consumers if they prefer to have these settled wells forced to be shut down and ruined for all time by cutting crude below operating costs with the certainty of fuel shortage in the immediate future and famine prices for gasoline, or whether they would rather pay a living price now and hereafter for an assured and continuing supply.

Surely the industry can get together and agree upon such a statement of the elementary facts about the oil business which the consumer ought to know to appreciate what he is getting. There is nothing controversial in such facts; nothing that can be challenged or contradicted.

These facts are capable of demonstration and proof that can be accepted by the public. They will be an irrefutable answer to the wild assertions of politicians seeking to thrive on public suspicion of the oil industry. Once the people are allowed to understand the situation there need be no further fear of Congressional interference. Why not give the people a chance to hear our side? If we don't we are sure to have cause to regret a lost opportunity.

IMPERIAL WORKS—The largest factory in the world devoted exclusively to the manufacture of oil well supplies. This factory is located at Oil City, Pa., and covers 45 acres of ground.

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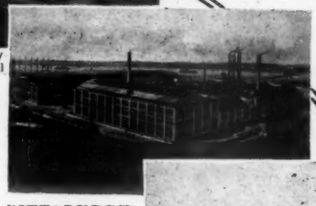

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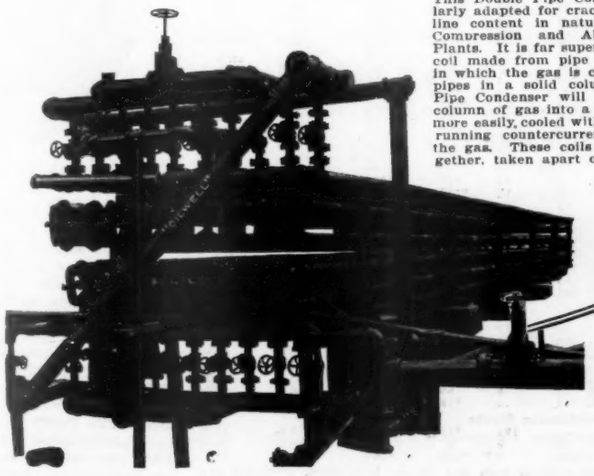


year's first Exposition.

lost opportunity.

Oil Securities Have Encouraging Week

Average Above Low of Year, But Some Weak Spots, and Slow and Steady Advance Rather Than Runaway Market Expected.

By N. O. Fanning

NEW YORK, Oct. 8.—A spirited upturn occurred in the oil securities market during the past week, bringing the average of prices considerably above the low of the year. It was, on the whole, the most encouraging week from the point of view of oil stocks witnessed since early in the year. Although practically every oil stock participated in the recovery, the movement on the New York Stock Exchange was led by Pacific Oil and Standard Oil Co. of California. The former advanced to 40⅝, against a low for the year of 31½, while the latter touched 55½, up 8⅜ from the low. These gains were largely maintained despite subsequent pressure on the list.

On the New York curb market, Standard Oil of Indiana, Standard Oil of New York and Vacuum Oil led in activity, but several other Standard Oil issues were notably strong, including Ohio Oil, Prairie Oil & Gas and Penn-Mex Fuel. Imperial Oil, Ltd., and International Petroleum, Ltd., were also strong. Prairie Oil & Gas advanced well above 170, against a recent low of 152. Vacuum Oil, reaching 51¼, was up 11¼ points from this year's low of 40.

In view of the extensive upturn in the stocks of the established oil companies, there is a disposition to be cautious with regard to their future movement. It is generally believed the evident change in sentiment regarding oil in the financial district is due to expectations of a rapid decline in crude oil production in California. However, the breadth of the recovery indicates belief in improvement throughout the industry, including the Mid-Continent and Eastern Fields. The issues of the Mid-Continent oil companies, including Cosden & Co., Phillips Petroleum, Skelly Oil, Producers & Refiners participated in the upward movement, which was regarded as favorable portent.

Penn Mex Fuel Makes High

Throughout the last few weeks there has been one exception to the general downward trend in oil securities. This refers to the stock of the Pen Mex Fuel Co., which actually registered a new high price for the year of 28 in today's trading. This contrasts with a low recorded this summer of 12. Wall Street appeared mystified at the upturn in this stock.

The rapid rise in the stock is attributed in some quarters to the bringing in of a good well by the company on its San Miguel tract in Mexico. This well, which is reported to have come in flowing 3,500 barrels daily, is said to be free of salt water, and indicates a continuance of the "Golden Lane," which has long been sought south of the Tuxpam River. Many wells have been brought in in this district on the Agua Nacida and other tracts, but they have been either pure salt water, or have gone to salt water. The San Miguel tract is farther east than any of these, being nearer the seacoast.

Weak Spots in List

There were several weak spots in the oil list. Transcontinental Oil stock was quite heavily sold and registered a new low at 3¼. Middle States Oil, after reacting, showed a good recovery. Island Oil stock, after announcement of a readjustment plan whereby Middle States Oil takes over one of its refineries, dropped to a new low at ⅛. White Oil after holding steady around $1 per share for the last few weeks, finally broke to ½. Texas Pacific Coal & Oil was also rather unsteady.

California Oil Stocks

The California oil issues increased in activity and were particularly strong during the last few days. California Petroleum got above 20, and the movements of Standard of California and Pacific Oil have been mentioned. In addition, Associated Oil stock was firm, although comparatively dull.

In some quarters it is regarded as significant that Standard Oil of California stock should reflect the strength and activity of Pacific Oil. Standard of California purchased an interest in Pacific Oil two years ago, but it is now believed the Standard has virtual control. The producing properties of the two concerns are very close to each other in the northern fields of California, and the operating interests of the two are therefore not far apart. In addition, it has been known that the Dutch-Shell interests were anxious to control Pacific Oil and it was considered natural that Standard should want to forestall the move. Pacific Oil Co. controls the Associated Oil Co. The northern oil properties of Standard of California, Pacific Oil and Associated Oil are considered valuable, particularly as a reserve to fall back upon in the event the southern fields become largely exhausted.

Despite the better showing made by oil stocks, there is a suspicion in some quarters that the "bears" are not yet through hammering them. While the oil situation is believed to be brightening, some concerns not strongly intrenched are expected to have a rather hard go of it over the winter. On the other hand, the strength in the stocks of some of the more established issues is a recognition of the fact that such stocks had been oversold. Just how far this strength will go is difficult to judge, but conservative interests look for a slow and steady advance rather than a runaway market just at this time. Those who had faith in the recovery of the petroleum industry and held on to their good oil stocks will not regret it.

NEW YORK STOCK EXCHANGE—LIST OF ACTIVE STOCKS

No.	Stock—	Par	Dividend Rate	Closing Quotations Oct. 9	Oct. 2	Range High	1923 Low
1.	Associated Oil	100	6	107⅛	100⅛	134	98¼
2.	Atlantic Refining, common	100	4	*108	*103	160	98¾
3.	Barnsdall "A"	25	..	*11	*13	35	9⅞
4.	Caddo Central Oil	..	..	1⅜	*1⅛	9⅛	1⅛
5.	California Petroleum, common	25	?	19	19	29⅛	17⅛
6.	Cosden & Co., common	..	?4	26	26⅜	62¼	22¾
7.	General American Tank	..	?3	*42	41	71⅞	40
8.	General Asphalt	100	..	28	29	54	23
9.	Houston Oil	100	..	*51	52	78	40¾
10.	Independent Oil & Gas	10	..	5¼	*3	11¼	3⅜
11.	Indiahoma Refining	25	..	2¼	2⅛	9	1¼
12.	Indian Refining	10	..	*5	*5	8⅛	5
13.	Invincible Oil	50	..	8⅞	9⅛	19¼	8
14.	Mariand Oil	..	?4	24	24⅜	59⅜	20¼
15.	Mexican Seaboard	..	..	9⅛	9⅞	19⅜	5⅜
16.	Middle States Oil	10	..	5¼	5	12¼	4⅜
17.	Pacific Oil	..	?3	38⅜	37⅛	48⅞	31⅛
18.	Pan-American, common	50	16	56⅛	56⅛	93⅛	53
19.	Panhandle Prod. & Ref.	..	..	*1⅛	*1	6¼	1⅜
20.	Phillips Petroleum	..	?3	24½	24⅞	69⅜	19¾
21.	Pierce Oil common	25	..	2	1⅞	6	1⅛
22.	Producers & Refiners	50	4	23¾	24⅛	58¼	20⅛
23.	Pure Oil Co., common	25	6	17⅛	17⅛	32	16¼
24.	Royal Dutch, N. Y., sh	13.40	2.62	43⅞	43⅝	55⅜	40⅛
25.	Shell Transport	10	x22⅛	28⅞	*33	41¼	29½
26.	Shell Union, common	..	?1	13⅜	15⅜	19¼	12⅜
27.	Simms Pet.	10	..	7⅛	7⅛	16⅜	6⅛
28.	Sinclair Consolidated, common	..	?3	18⅜	18½	39⅜	16
29.	Skelly Oil	25	..	16⅜	16¼	35	12¼
30.	Standard of California	25	8	52	52½	64⅛	47⅛
31.	Standard Oil of N. J.	25	4	33	33⅛	44½	30⅞
32.	Standard of New Jersey, preferred	100	7	*116	116¼	118	114¾
33.	Superior Oil	..	..	2⅝	2	6⅜	2
34.	The Texas Co.	25	13	41¼	41¼	52⅞	39¼
35.	Texas & Pacific Coal & Oil	10	..	7⅜	8	24⅜	7
36.	Tide Water Oil	100	..	102	101	144	94
37.	Transcontinental	..	..	2¼	3⅜	14½	2¼
38.	Union Tank, preferred	100	7	*112¼	107	114	106
39.	White Eagle Oil & Ref.	..	2¼	*22½	22	30⅜	20⅛
40.	White Oil	..	..	½	1⅛	5⅛	½
	Standard Oil Stocks						
41.	Anglo-American Oil	5	10	14⅝	14⅜	19¾	13½
42.	Borne Scrymser	100	17	*130	135	153	110
43.	Buckeye Pipe Line	50	14	79½	80	94	77
44.	Chesebrough Manufacturing, Com.	100	14	*220	*224	238	205
45.	Continental Oil	100	8	*35½	*34¾	50	32½
46.	Crescent Pipe Line	50	6	*16	*17	25	16
47.	Cumberland Pipe Line	100	12	*103	*106	116	80
48.	Eureka Pipe Line	100	8	97¼	98	117½	96
49.	Galena-Signal, common	100	4	60½	58½	78	55
50.	Humble Oil & Ref.	25	8	*30¼	*28½	41	28¼
51.	Illinois Pipe Line	100	14	*155	152	171	152
52.	Imperial Oil, Ltd.	25	16	98	*98	123	92
53.	Indiana Pipe Line	50	16	*90	*88	103	83½
54.	Intl. Pet., Ltd.	..	50	15⅛	15½	24¾	13¼
55.	Magnolia Pet.	100	6	127	129½	166	123
56.	National Transit	12.50	16	*34	*34	29	22¾
57.	New York Transit	100	12	*93	*93	138	92
58.	Northern Pipe Line	100	25	*101½	107	111	96
59.	Ohio Oil Co.	25	12	58½	55½	85¾	48¾
60.	Penn-Mex Fuel	25	..	25	*18½	28	10½
61.	Prairie Oil & Gas	100	8	166	167½	272	152
62.	Prairie Pipe Line	100	8	99	98½	117	93
63.	Solar Refining Co.	100	15	*174	*165	213	161
64.	Southern Pipe Line	100	16	92½	*93½	116	92
65.	South Penn Oil	100	..	120	*120	196	100
66.	South West Pa. Line	100	8	*80	*81½	89	66
67.	Standard of Indiana	25	10	65½	54½	69⅜	49¼
68.	Standard of Kansas	25	8	*39½	40	56¼	36½
69.	Standard of Kentucky	25	16	91	90	109½	76
70.	Standard of Nebraska	100	20	*210	*280	280	186
71.	Standard Oil of N. Y.	25	16.8	41	42	49¾	35½
72.	Standard of Ohio, common	100	10	278	*275	317	270
73.	Swan & Finch	100	..	*24	*23	38	21½
74.	Vacuum Oil	25	8	50½	49½	55¼	40
75.	Washington Oil	10	..	*18	*21	28	23
	Miscellaneous Stocks						
76.	Cities Service, banker's shares	..	‡21	*12⅛	*13	18½	12⅞
77.	Gulf Oil Corporation of Pa.	25	6	51	50½	69¼	45¾
78.	Union Oil of Cal.	100	8.2	*100	*100	115	90

*Bid, no sales. †In dollars. ‡6 per cent in cash and 15 per cent stock dividend declared; now being paid in scrip. xCents per share.

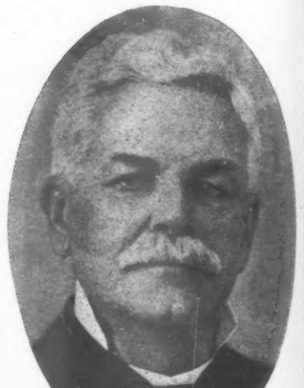
The Oil and Gas Journal's weekly average price of 20 representative petroleum stocks listed on the New York Stock Exchange weekly was as follows:

Oct. 9	43.39	Aug. 28	44.18	July 17	46.52
Oct. 2	43.53	Aug. 21	44.24	July 10	45.90
Sept. 25	43.48	Aug. 14	43.39	July 3	45.48
Sept. 18	41.43	Aug. 7	43.87	June 26	47.52
Sept. 11	44 78	July 31	42.58	June 19	48.26
Sept. 4	44.06	July 24	46.32	June 12	51.75

Organizer of Gulf Pipe Line and Gypsy Oil Companies Dies

Humphries Y. Arnold, aged 77, organizer of the Gulf Pipe Line Co. here and subsequently its subsidiary, the Gypsy Oil Co., died in Tulsa Monday night. He had been seriously ill six months and in poor health for two years.

Mr. Arnold was a native of Bedford, Pa., and his body will be taken there for burial. He ran away from school in 1861 and enlisted for the Civil War,



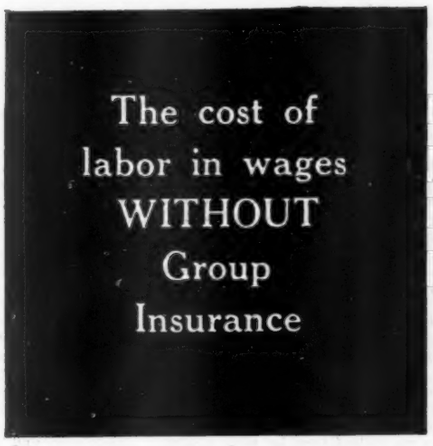
H. Y. Arnold

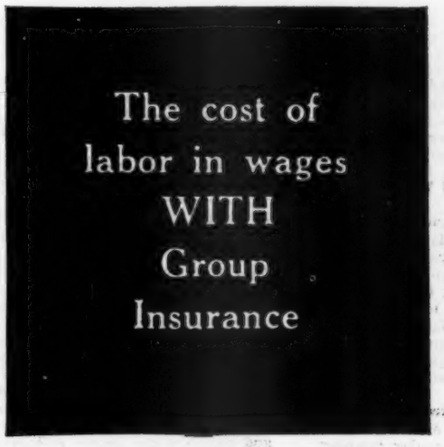
serving in the Fifty-fifth Pennsylvania Volunteers until the close.

In 1902 Mr. Arnold went to Port Arthur and was general manager of the Gulf Co. refinery there. Before entering the service of the Mellon interests he was an oil broker, buying and selling crude when it was shipped in barrels.

Mr. Arnold came here from Port Arthur, Tex., in 1906, and had lived in Tulsa almost continuously since, making his home with his son, John A. Arnold, 1228 South Norfolk. He retired from active work with the Gulf Co. in 1909, after being connected with the Mellon interests for about 30 years.

Besides his son here Mr. Arnold is survived by one daughter, Mrs. William B. Long of Houston, Tex., and three grandchildren, Virginia Louise, John Goodman and Isabelle Gertrude Arnold, children of John A. Arnold.





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(THE RIGHT SQUARE IS $\frac{1}{32}$ OF AN INCH LARGER ON EACH SIDE)

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Many Nations Represented at Congress

Questions of Interest to Every Branch of the Petroleum Industry Are Discussed at First International Oil Meeting.

By James McIntyre

With delegates representing all the American oil fields, and either the Governments or the oil industry of Venezuela, Ecuador, Mexico, Guatemala, Peru, Germany, France, Roumania, China and Japan, the first International Petroleum Congress was held in Convention Hall, Tulsa, on Tuesday and Wednesday, October 9 and 10.

The object of the Congress is to bring together the representatives of the oil interests of all oil producing nations so that they can co-operate in working out problems that confront the whole world's oil industry; to bring together in a central place the manufacturer and purchasers of tools and equipment that enters into all departments of the business and for the furtherance of goodfellowship.

E. R. Perry, vice president and general manager of Cosden & Co., presided at the opening session Tuesday morning.

Foreign Delegates

Moises Perogordo y Lasso is representing the Department of Commerce of the Mexican Government; Don Francisco Latour, minister from Guatemala, represents that country; George Anagnostache is the Roumanian representative; Lucio Baldo represents Venezuela; Dr. Santiago Bedoya, secretary of the Peruvian Embassy; Dr. Cueva Garcia, Ecuador; Dr. T. O. Chu, the Chinese Governmental Geological survey; Paul Ehrhardt, the French producing and refining industry; H. Hollesen, the Hugo Stinnes interests in Germany. The accredited representative of Switzerland is R. Staechelin, and of the Japanese oil industry, Kenzo Sato. The three latter had not arrived for the opening session.

Mr. Jackson in his address of welcome to the delegates, presented the objects of the International Petroleum Exposition and Congress in detail. His speech is given in part elsewhere. Among the points taken up by Mr. Jackson were the benefits to be derived from a permanent exposition and congress, the elimination of fake oil promoters, the organization of an international body of oil men, the Knights of the Derrick, which has already been started, and the objects of which are fraternal and charitable; the establishment of a permanent petroleum museum and the establishment of a home for aged oil men.

Committees Appointed

Mr. Perry at the conclusion of President Jackson's address appointed several important committees as follows:

For the establishment of a permanent exposition and congress: J. Arthur Hull, chairman; James K. Crawford, John H. Markham, Jr., W. K. Skelly and David F. Connolly.

Resolutions on fake oil promotions and promoters: J. A. Vesey, chairman, H. H. Smith, Clint Moore, W. M. Welch and E. W. Marland.

On the Knights of the Derrick: W. N. Davis, chairman; A. W. Leonard, P. M. Miskel, R. S. McArthur and D. E. Buchanan.

Mr. Perry announced that the committees as named could add to their respective numbers as they saw proper.

Elwood Sampson, secretary of the Detroit Association of Purchasing Agents, spoke on "Purchasing and Profits.

"Most business men," he said, "place the purchasing for their business in the same category as the taxes on their business— an unavoidable expense. So they give it just as little attention as possible, then turn their real interest to what they believe is the source of profits—sales.

"My purpose is to show that if you will take your purchasing out of the expense end of your business and put it over into the profit producing end you can make profits so large they will surprise and delight you."

One of the most interesting and instructive numbers on the first day's program was the illustrated talk by W. A. Durgin, of the United States Department of Commerce on "Standardization," or as Mr. Durgin called it "Simplified Practice." Billions of dollars could be saved by American manufacturers annually by the adoption of simplified practice, Mr. Durgin said. He gave a large number of examples of duplications of parts, sizes and styles and where, by a severe process of elimination, they had been reduced to a minimum or were being reduced as rapidly as possible. The speaker urged the oil men to get behind the industrial campaign for standardization of rig irons, pipe and other oil well accessories, and promised the hearty co-operation of the Department of Commerce in the effort.

Foreign Representatives Speak

Dn Francisco Latour, minister from Guatemala, spoke on "Oil Prospects in Guatemala." The address is printed elsewhere and likewise that of Dr. Santiago Bedoya, secretary of the Peruvian Embassy at Washington, who gave an illuminating address on "Petroleum in Peru," which country was one of the oldest oil producing nations of South America.

K. C. Heald of the National Research Council and U. S. Geological Survey, spoke on "The Oil Industry's Stake in Geological Research." He showed the small percentage of oil that is extracted from the sands by present day methods and the necessity of scientific research and engineering inventiveness that will make it possible to recover the wealth that is left in the sands. The Geological Survey and the National Research Council, he said, urges the formation of a co-operative organization to plan, sponsor and finance work on fundamental problems of oil geology and it looks to the industry to develop such an organization. The desirability of co-operative research had been demonstrated by more than 70 organizations in the United States and there is an evident need for such co-operation in the business of producing oil, he said.

S. Clark Reed's Address

The closing speech of the morning was delivered by S. Clark Reed, vice president of the Oil Well Supply Co., on "The Relation of the Supply Man to the Producer." In the United States alone, he said, there are over twelve billion dollars invested in the petroleum industry, making it the second largest industry in the country, with an annual turnover of over five billion.

A tremendous amount of capital has been invested by supply companies in plants, machinery and equipment for the exclusive purpose of building oil field equipment. There are several companies which manufacture this and nothing else. This means the producers get the benefit not only of the reduction in cost due to specialized manufacture but he also benefits by improved machinery and equipment developed by trained engineers whose sole job it is to take and adapt all the ideas and improvements born of the field man's experience. The supply man has always been quick to improve the quality of his goods and through the experience of long years of co-operative effort the producer has come to regard the supply man as a willing, intelligent and valuable partner in the constant struggle for improved methods of production.

The supply man, Mr. Reed said, has become the channel through which the manufacturers of what may be termed incidental lines of equipment could reach the oil producer. This was in the case of brass goods, packing, fittings, cables, etc., which in itself was an economy. The ordinary supply company branch store carries from 6,000 to 8,000 different articles and the volume alone results in decreased marketing costs.

The supply company markets its goods where they are immediately available. No matter where the pioneer develops the oil bearing sands, said Mr. Reed, there you will find the supply man. The important problem is to get the goods where they may be most quickly and easily put to use by the producer. Necessarily this means increased costs, for, if instead of putting the store in the midst of the field, the supply man were content to keep his stocks at the railroad centers and sell them there, the cost would of course be lowered, but the time lost in getting the goods to the well would render this absolutely unsatisfactory.

Standardized Equipment

"Finally, the greatest service we can render is in the creation of standardized equipment," continued Mr. Reed. "By this I do not mean standardization based on interchangeability, but I do mean the elimination of all unnecessary styles and sizes. By this I mean equipment, adequate for all contingencies, eliminating all variations based merely on individual or local prejudices and practices. The whole industry today suffers from an undue burden of manufacturing costs due to unnecessary variations of standard sizes. I know of one manufacturer who reduced his styles of sand reels from about 75 to 18. Another case was that of drive shoes, the various sizes manufactured being reduced something like 30 per cent. Great economies in this direction can be effected by joint action of the producer and supply man.

"The American Petroleum Institute has already taken cognizance of this matter, and there are several committees appointed by the Institute now working on the standardization of casing and drilling tools and I understand that during this exposition there is to be a conference on rig irons which was started by the Purchasing Agents Association of Tulsa. This indicates that the subject is having attention, but it is so important that every effort must be made to encourage and extend the movement.

"Just now the petroleum industry looms large in the minds of the American people. We are in the lime light. We

QUEEN OF EXPOSITION AND CONGRESS

MISS DE VERN VENSEL
Miss Vensel is the daughter of a Tulsa oil man

must justify our position. We must show what a wonderfully efficient industry we are and so the producer and the supply man, the refiner and the distributor must co-operate to the fullest extent in a concentrated effort to eliminate all waste and so pass on to the ultimate consumer the results of such co-operation in the shape of reduced cost for the finished product.

Developed in America

"The relation of the supply companies to the producer of other countries has always been close. The petroleum industry has been developed largely by America, and certainly most of the equipment has been made and improved in this country. When men from other countries began the development of oil fields they turned to America for advice and guidance. Naturally, they came to the supply man first and there has grown up an intimate contact which has been mutually profitable. The supply man has not been a seller of merchandise, but a consulting engineer, giving the benefit of American experience and also has acted as an employment agency, supplying the equipment and also the trained men necessary for its successful operation. Another service, of great importance, which the foreigner receives from the supply man is the expert advice concerning the laws and customs of alien countries to which the goods are shipped.

"An intimate knowledge of the tariffs, on consular practice, of classification of goods, are necessary, and important economies in the handling of goods are effected for the customer. Apparently the tariff laws of some countries are framed on the assumption that all mistakes in shipping documents are made with intent to defraud the Government. An expert knowledge results in a tremendous saving to the customer.

"The petroleum industry is now going through one of its periodic depressions, which bring to mind another most important function of the supply company. As a group we have always encouraged the producer, large and small, in many cases assuming a large part of their financial burdens. When the depression comes and the producers' income is curtailed the supply company assumes the function of a banker until the tide turns and the opportunity comes to liquidate the obligations.

Integral and Important

"I believe no other business carries so large a line of open accounts, the only security on which is the moral responsibility of the debtor. We are not complaining, we are not suggesting a remedy, we are merely stating a fact, and developing the contention that the supply company is an integral part of this industry and a most important one, too.

"How can these two important groups be guided into a greater service? By a closer co-operation, a more intimate, more intelligent understanding of the other fellow's point of view and more opportunities to discuss the difficulties and problems common to both. The supply man would like to see more consideration given to the element of quality and service rather than that of price. He is ever on the alert to improve the quality of his product, but if the pressure of competition forces the price down and the purchasing agent makes his decision based on the price without considering the ultimate replacement cost, necessarily the inevitable result will be the cheapening of the product with a consequent loss to the producer. There are so many unavoidable difficulties and dangers in drilling, that all necessary obstacles should be removed by giving the field men equipment of the very best quality, regardless of price.

"The wildcatter does not always make the oil field convenient to a town and so we are forced to establish our stores in the open country. Of late years this has meant a tremendous increase in the cost of doing business, for not only are we forced to make the original investment in stocks and accounts, but we must often purchase ground at highly inflated values, and then put up buildings to house our men as well as the stock. As our prices are highly competitive, contrary to the general impression, this increased cost necessarily bears most heavily on the supply companies. I mention this merely because we hear so much of the increased cost to the producer and we want him to know that he carries no monopoly."

JUDGE S. H. KING
King of the International Petroleum Exposition and Congress

King Petroleum in private life is S. H. King, attorney at law of Tulsa. Mr. King was one of the first attorneys for the Osage tribe of Indians. He is a native of Virginia and is 79 years of age. His dignified appearance, fine features and wealth of white hair made of him every inch a king and a shining coat of mail which covered his entire person and a gorgeous crown emphasized the effect he created.

VIEWS OF GAUTEMALAN OIL POSSIBILITIES

By Don Francisco Latour
Minister to the United States from Gautemala, before Petroleum Congress.

The oil possibilities of Guatemala have thus far not been appreciated in the world at large because until last year it was the policy of the Government of Guatemala, which owns the subsoil, to discourage oil development. However, in 1922, the present Government enacted a law designed to facilitate the development of the oil resources, which, in the opinion of many people are hidden in several portions of the Republic. That law gives reciprocal rights to citizens of the United States to secure leases.

Don Francisco Latour

The northern half of the Republic is as yet considered the most probable source of petroleum because of its folded Cretaceous and Tertiary sediments, the most favorable structures laying in the Departments of El Peten, Izabal, Alta Verapaz and Huehuetenange.

I know of at least two companies that have been formed lately in Guatemala with the object of developing the oil industry. One, the Guatemala Petroleum Development Co., financed by Guatemala and foreign capital; the other, the Guatemala Oil Corp., has just been organized with Central American, American and Mexican capital.

The new petroleum law has a reciprocity caluse which allows Americans to obtain leases, and leases have already been granted under this reciprocity provision. You will also find provisions for free imports of necessary machinery, equipment and such subsistence stores as are not obtainable in Guatemala. You will also find data on the terms of leases, rentals, royalties, etc., etc.

—(c) Harris & Ewing

DR. SANTIAGO F. BEDOYA
Secretary of the Peruvian Embassy

BIG SUCCESS OIL WORLD VERDICT ON EXPOSITION AND CONGRESS

The International Petroleum Exposition and Congress which opened in Tulsa on Monday morning and which will continue until Sunday night, was formally inaugurated Monday morning with the arrival of King Petroleum and his suite on a special Frisco train.

The King, in regal attire and attended by two handsome little pages, was met by the officers and directors of the exposition and a special committee representing Tulsa headed by Dr. Fred S. Clinton, one of the owners of the first producing oil well completed in the Tulsa district, and made up of Lon R. Stansbury, Arthur F. Anite, J. M. Chandler and Phil W. Davis, Jr.

Dr. Clinton presented the King to the people and President L. B. Jackson extended his majesty the sceptre of office.

Arriving at the exposition grounds Mayor Newblock presented the key of the city of Tulsa to King Petroleum, and his majesty responded, paying high tribute to the spirit of Tulsa's pioneers and those who assisted in making it the oil metropolis of the world.

Greatest of its Kind

At this writing, Wednesday, the exposition is on its third day. Over two hundred exhibitors are showing the most complete line of oil country goods ever assembled. The show is a success. There are men in Tulsa from every oil field in the United States and many others interested in the refining and marketing of oil from non-producing states. The opening day's crowd numbered over 5 000. Tuesday's attendance greatly exceeded this and it is expected the daily attendance will steadily grow. Oil companies having their headquarters in Tulsa, when the magnitude of the show and the educational benefits to be derived from it were brought home to their officials, immediately made arrangement to have their superintendents and field operatives of lesser authority devote a part of the week to a study of the multitudinous things on exhibition as well as the scientfic displays of the United States Bureau of Mines, the Geological Survey and technical societies.

On the opening day the interest was so great it was nearly midnight before the last visitor left the grounds, and the same interest was shown by the larger crowd on Tuesday night.

The most surprised and enthusiastic of all were the exhibitors themselves. Many of these have said that this was the greatest exposition the oil and gas industry had ever known.

The exposition occupies two blocks on Boulder avenue, and three blocks on Brady avenue and in addition large vacant lots were utilized for the display of very heavy machinery and for the derricks where drilling operations were under way. All the buildings are of steel construction. A separate structure of large dimensions houses the scientific, technical and historical displays. Convention Hall, with a seating capacity of 3 000 people is used for meetinrs of the congress and other events, and for the hippodrome performances.

Enthusiasm and the best of feeling marks the exposition. It has been the meeting place of many old friends whose business or occupation ordinarily has kept them wide apart, and the renewal of old friendships has been one of the fine things in connection with the big show. It has brought manufacturer and purchaser together intimately and created personal friendships which heretofore had only been extended to the goods the one made and the other bought.

OIL FIELDS OF CHINA OUTLINED BY DELEGATE

By T. O. Chu
(*Delegate from China to the Petroleum Congress*)

The oil fields of China are in the western and northwestern provinces of the country. In Sinkiang province, oil territory is found along the northern side of the Tienshan Mountains, and from there, it extends eastward into Kansu and Shensi provinces, along the northern side of the Tsinglingshan Mountains. It is also found in Szechwan province, along the southern side of the Tsinglingshan Mountains. In general, these fields surround the northern and the eastern sides of the plateau of Tibet. Although there are some outcrops of oil shales in Chili, Shansi, Honan, and Shantung provinces, no oil has yet been found.

The oil fields of China cover a very large area, and probably one-fourth of the area of the whole country is promising for the discovery of oil. The geological formations of the northwestern provinces and the interior Mongolia are almost similar to the Shensi and Szechwan fields. There is no profitable commercial production of oil in these fields yet. Important oil fields in other provinces will almost certainly be found if further prospecting work is to be carried on.

Group 3 Market Firm Despite Changes

Not Yet Affected by Crude and Tank Wagon Reductions. California Crude Cut is Regarded as Highly Significant.

By C. O. Willson

Despite breaks in the tank wagon markets of the Middle West and Southwest, and changes in crude prices indirectly affecting its crude supplies, refined markets in Group 3 during the past week continued generally firm. Although the firmness of the market in the face of these developments is encouraging, it is generally conceded the market outlook at this time is not so favorable as it was a week and two weeks ago.

The 1½-cent reduction in the Standard of Indiana kerosene tank wagon, effective October 4, was not unexpected. Group 3 prices have not changed since the announcement was made. The margin between the refinery price of the Mid-Continent and Standard of Indiana tank wagon was exceptionally wide, although no wider at the time of the reduction than it had been several months. It was the first general change that has been made in the kerosene tank wagon price of the Standard of Indiana territory since July 19, last year.

Kerosene Stocks Not Heavy

As previously stated, the tank wagon reduction has not yet been reflected in the refinery price in Group 3 and it is doubtful if it will be. Kerosene stocks are not heavy in the Mid-Continent area and the August report of the Bureau of Mines, carried in full elsewhere in this issue, shows that this is a general situation.

There were other changes in the Standard of Indiana territory, however, during the past week which were conceded to be of more importance in the markets of Group 3. This applies to the revival of "gasoline wars" in the Middle West which has already brought reductions in the gasoline tank wagon markets at such points as Detroit St. Louis, Kansas City and Minneapolis, and a large number of less important towns and cities. The same situation applies at many points in the Southwest, also of special importance to the refining and marketing fraternity of Group 3. A glance at the present tank wagon markets at Fort Worth, Dallas, Tulsa, and Oklahoma City will indicate the situation which seems in many instances to center in the largest consuming centers.

Tank Wagon Not Out of Line

Previous to the 6.6-cent gasoline tank wagon reduction on August 14, these gasoline price wars could be explained as being due to too wide margins between the refinery and tank wagon markets. This situation still applies at a few points, but generally speaking, the Standard of Indiana tank wagon prices are not out of line at the present time. It has been pointed out by some that the marketing end of the industry is now paying for that period of special prosperity which extended over several months and during which there was an exceptionally wide margin between the tank wagon and refinery prices.

The situation during the summer months unquestionably attracted many new concerns to the jobbing end of the oil business. Obtaining their business by making their prices under those of their longer established competitors they are continuing this policy, although the wide margin no longer exists. It is obvious that this situation has always been unsound and at the present time is suicidal and in the end means the elimination of the weaker concern.

Changes in Crude

The second development of importance during the past week was the changes in crude prices which at this writing had not directly affected the crude supply of Group 3, but which were nevertheless conceded to be of special importance in that they indicated a general situation in the crude markets. In the North Texas Field The Texas Co. and the Humble Oil & Refining Co. announced new prices and at the same time agreed to take 100 per cent of the runs of producers. These prices are explained elsewhere in this issue. There are now three sets of prices for North Texas crudes as posted by major purchasing companies in addition to the varying prices paid by the independent refiners of that area. It is further proof of an unusual situation in which there are divergent opinion among the major crude purchasing companies as to the value of the product they buy.

As has been explained in these columns previously there has been considerable dissatisfaction with the price schedules made effective in September by the Prairie Oil & Gas Co. not only by the independent refiners but also by some of the large pipe line purchasers. Perhaps the situation was best explained by R. R. Irwin, vice president of the White Eagle Oil & Refining Co., a large crude purchaser, who in an address before the Western Petroleum Refiners' Association at Tulsa on Tuesday, said in part:

"Today's wholesale gasoline market is only 4 cents to 5 cents per gallon more than fuel oil. Applying this to crude oil we can say that for present refinery and sales purposes the value of a barrel of crude is increased or decreased 4c for each increase or decrease of one gallon in its gasoline content. We all know that the gravity of crude oil is not a fully reliable indicator of gasoline content or of value, but it is the most practical guide that we now have for buying. Information secured from time to time shows that while there is considerable variation in the recovery of gasoline from crude oil of the same gravity produced in different fields, it is a reasonably fair estimate to say that for Mid-Continent gasoline crudes testing 30 gravity and above, the gasoline content increases 2 per cent each degree in gravity. Two per cent amounts to .8 of a gallon and at the present differential value of 4 cents, before explained, would amount to a little over 3 cents per barrel. This means that on the average and at the present time the value of a barrel of crude oil varies about 3 cents for each degree in gravity. This would make the range between 30 gravity and 40 gravity crude only 30 cents per barrel.

"An increase of 5 cents per gallon in gasoline and only 1 cent per gallon in fuel oil would make the spread of value between each degree in gravity of crude about 6 cents per barrel, instead of 3 cents, although, as you know, it costs some more to store light gravity oil than heavy. The difference is now sufficient to alter the fact that the ratio of gravity values might be different than for crude to be refined and sold immediately.

"Please understand that I am referring only to the spread of gravity values in line with my subject and not with the level of price.

"Perhaps no logical conclusion in the matter of posting crude oil markets can be reached without some consideration of production costs in various fields and the temporary status of supply and demand but from the standpoint of the buyer of crude, I am of the opinion that—

"The present posted prices of Mid-Continent crude are not equitable as between the grades specified. The average gravity of the total production of the middle grade is, I believe, somewhere between 35 and 36 gravity. As before shown, the spread of value between this average and the value of 40 gravity crude cannot be more than 12 cents or 15 cents per barrel, whereas, the difference provided in the posted market is 45 cents.

Gravity Prices

"Then one-tenth of a degree in gravity as between 39.9 and 40 gravity makes a difference of 45 cents per barrel to the buyer and producer which is too much when applied in the same field.

"I am further of the opinion that if the posted market is made on a gravity basis, it should be set and adjusted from time to time. The reason this should be the rule is that if averages of grades are used and wide spreads given in the price schedule, an unequal demand for the various grades of crude oil is created which eventually gives rise to premiums and inequalities in prices so large that the posted market ceases to become operative as a basis for costs. This unequal demand further creates unnecessary gathering costs that would be saved for both producer and refiner if each refiner took crude closest to his plant.

"In concluding this subject, I might say that I believe the gravity method, under conditions before outlined, is a logical method of buying crude oil with the possible exception of periods when the average price of crude oil is low, say $1 per barrel or less. When the latter is the case, a flat price for the entire field may be preferable."

California Reduction

Some who keep in close touch with conditions affecting crude markets see in another crude change a development which may finally determine the trend of Mid-Continent prices. This was the reduction of 2 to 28 cents in California crude of 22 gravity or above. This gives the California crudes a posted price varying from 60 to 76 cents. Many producers and refiners have feared this development for several weeks, which has been forecast by refined market conditions. Those in touch with Group 3 markets have known that since the first of September Mid-Continent refiners for the first time in several months reduced their prices when necessary, so that they were able to compete with California products and were able to dispose of their output and part of their accumulated stocks. This situation probably accounts for the firm markets of the past several weeks in Group 3.

This regaining on the part of the Mid-Continent refiners of a part of their lost marketing territory has, of course, meant a corresponding loss to the California products. It has been pointed out the inevitable development of this situation was a lowering of California crude which in turn would allow refiners who use California crude to lower their refined product prices.

It is apparent that based on this deduction as to conditions, Mid-Continent crude and refined products will in the end be lowered again to meet this California competition. These developments do not come over night but they deserve the attention of all who are endeavoring to gauge market conditions over a period of several mnths.

Gasolines

As previously stated there has been practically no change during the past week in gasoline markets of Group 3. Several refiners are moving large quantities of New Navy at 6½ cents but there has been practically no gasoline sold under that figure and several plants are selling their output at 6¾ and 7 cents. Cosden & Co., during the past week, have reduced their New Navy price from 7 to 6¾ cents to the trade and are understood to have made sales at that price in addition to their marginal contracts. This company has increased its runs to approximately 20 000 barrels daily, a boost of approximately 100 per cent over their September runs. There was practically no change in the higher gravities gasoline.

Fuel and Gas Oils

Fuel oil prices did not change during the past week. The supply available for spot market shipment is still largely confined to comparatively few plants and they have as yet not been forced to give

(Continued on Page 126)

REFINED MARKET BAROMETER

Refined markets during the past week were not as firm as they were the previous week. The movement and prices in several refining areas were practically unchanged while in others there were important reductions or advances. The fuel oil market was weak in most areas as were other oils used for fuel. The demand for gasoline was fair and there were no important price changes. Gasoline "price wars" were in evidence at scattered points. Kerosene varied from weak to strong with both price reductions and advances. Neutrals prices were unchanged except in the East where they were lowered.

Mid-Continent—Market developments were not uniform in all refining centers although generally prices were firm. There were practically no changes in gasoline prices with a favorable demand. Kerosene prices were generally firm except in North Texas, where prices were reduced from ⅛ to ¼ cent on certain grades. Fuel oil prices were firm in Group 3 and Kansas but weak in North Texas and North Louisiana. Natural gasolines were strong with advances in prices where there were any changes. Neutrals unchanged.

Atlantic Seaboard—Lubricating oils reduced. Gas oil reduced following reduction in other fuel oils. Export prices on gasolines and naphtha lower; 15-cent reduction in bunker oil announced last week due to a decline in consumption and drop in export demand. Outlook for fuels favorable. Gasoline market uncertain with no important price changes. Demand for gasoline weak and stocks are beginning to increase. Gain in receipts of Mexican oils.

Chicago—General reductions in kerosene tank wagon markets in Standard of Indiana territory and scattered reductions in gasoline tank wagon markets unsettle market with no important changes. Strong demand for kerosene and prices firm. Fuel oil slow and gas oils weak. Lubricating oils unchanged.

Pennsylvania—Recent shut downs and curtailed operations have restricted amount of refined products available and the price structure is improving. Gasoline demand and prices unchanged. Demand for kerosene strong and prices again advanced. Cylinder oils improved with advance in prices where there were any changes. Strong demand for 600 steam refined.

Gulf Coast—All grades of zero cold test oils show strength. In spite of decreased shipments, summer oil prices hold firm. Considerable movement of 750 viscosity oils. Strong demand for the 500 viscosity oils. Fuel oil dull. Gas oil firm.

Why bother about the present price of crude when your own refinery fuel oil, by the use of the Dubbs Cracking Process, will yield more gallons of good gasoline per barrel than you can get from almost any high grade crude

And the cost of cracking by the Dubbs Process, direct and without pre-treatment or pre-distillation, is no more than the average cost of skimming

Universal Oil Products Company
Owners of the Dubbs Process
208 South La Salle Street Chicago

Enthusiastic Exhibitors at Exposition

Proud of Their Displays and Under Barrage of Questions From the Curious Ever Courteous and Ready With Explanations

By Ralph T. Baker

If you attended the International Petroleum Exposition and Congress you will know what a man means when he says, "it opened with a bang!"

There were lots of big bangs and scads of little bangs. In fact "bang-bang-bang" might be taken as the college yell for the Petroleum University, for such the magnificient exposition should be called. But unlike the co-eds in our larger institutions of learning, the students at the big Petroleum University were on hand early, and the crowds that witnessed the initial efforts of the industry's boosters were large, jolly and eager for information.

Too much cannot be said in favor of the exhibitors who have made this event possible. In brief, the entire affair may be termed, "the petroleum industry in miniature." Men from all branches were there rubbing elbows and swapping ideas. They criticized the mechanical developments of every phase and told side-splitting and long-winded yarns. They enjoyed themselves and theirfellows and incidentally learned considerable about those portions of the oil business with which they had not been familiar. It was a great day for everybody.

And the exhibits. How the "tenderfeet" did stare. "Yes, ma'am, that's the rope we use to tie the bull wheel away from the calf wheel," cautiously remarked one hardened "toolie" on the derrick floor of a drilling well, following the 'steenth explanation of articles within eye-shot of a buxom matron, who confessed that this was her first attempt to learn the oil business, at first hand. She admitted that she had bought some "Green Snake" oil stock several years ago.

An Industry in Miniature

But, that's what it was. The whole exposition was really a miniature working model of every phase of the oil business, and it was appreciated by the old-timer, the office man, driller, refiner and marketer alike. Each one saw much to help him in his particular job and he learned to appreciate the efforts of the other fellow in his work. Some idea of the compass of the industry was seen and appreciated and a new vision of the business was given the observers.

B. L. Potter, district manager, and F. B. Dunlap, Tulsa manager for the Bessemer Gas Engine Co., had the noisiest exhibit on the grounds. Doubtless that was the reason for putting the police station in their booth. But they failed to keep quiet, anyhow. And why should they? They had a life-sized Model X Bessemer gas engine and compressor. It had lots of new features and kept both men busy explaining its virtues to wise and dumb, beautiful and ragged.

The Sullivan Machinery Co. was using compressed air from the Bessemer exhibit to turn over its big Type F. K. core drill. George E. Failing, a young man from Garber, Okla., was in charge of the exhibit, as local agent. His assistant was E. E. Wagoner, of Chicago, who is in charge of the Tulsa office. Other Sullivan men present were D. H. Hunter, of Dallas, H. P. Walsh, vice president of the company, Chicago, and J. J. Mitchell, of Chicago, general manager of the Diamond drill department of the Sullivan Machinery Co.

The Sullivan exhibit was set up in an 84-foot standard, third weight galvanized steel drilling derrick, proudly pointed out by the commanding finger of Harry M. Runkle, vice president of the International Derrick & Equipment Co., of Columbus, Ohio. "Remember, young man, if it's International, it's IDECO," Mr. Runkle asserted to The Oil & Gas Journal representative. "Also, see that box girder type walking beam, and that steel tug rim and that steel bull wheel? And that all-steel self-oiling crown block? That active young fellow up the ladder there is our Tulsa district manager, Floyd Mohler. You'll like him."

D. F. Connolly, who is the head of the D. F. Connolly Agency, Inc., had steam up in a Farrar & Trefts, Inc., boiler, and showed a boiler stack, anchored to the boiler by stays, eliminating the wire guys. Looked like a good idea. Nearby was the big gas-testing truck of the Chestnut & Smith Corp. under tutelage of F. E. Fisher. It has seen service all over the State and has been driven thousands of miles. It was the pioneer in the later model of complete gas-testing trucks.

Frank Lang, of the Wilson Drilling Co., Tulsa, was pushing the crew on Well No. 1, Chicken farm, with Hinderliter and Staples showing as owners. Frank was unable to talk because of an enormous chew of "Mail Pouch," he having just succumbed to a wager that he could absorb more than any man who ever stepped on the floor of a standard rig. "And I can prove it, too," he asserted. "I defy any guy living or dead to take a bigger chew than I can." Harry Wells and Ellis Bingham, the day crew on the drilling well, disclaimed any connection with "chawing," pinning their faith to "cawn licker," and 16-pound sledges. Norman Preston and Earl Connihan, of the afternoon "tour," confessed to penchants for "Beech-Nut hip grease" and pleasant siestas on the lazy-bench.

Chicken Farm Well

No place was more popular than the Chicken Farm well. The spudding line was furnished by the Wickwire-Spencer Steel Line Co. The forge and steel boxes were furnished by the Deck Clamp Tank Co. Lee C. Moore & Co. brought the all-steel bull wheel and the Bovaird Supply Co. gave the Wall bull rope, elevators and spiders. The Hinderliter Tool & Supply Co. got the drilling tools and the standardized rig irons were from the warehouse of the Bradford Rig & Reel Co. Lumber in the derrick was from the W. R. Pickering Co., and the Slater turnbuckle derrick was the product of the McGraw-Baughman-Bearly Co., of Tulsa, represented on the grounds by H. L. Dickson, F. D. Bearly and Ralph Bearly. D. D. Wertzberger's men erected the derrick; engine and boiler were furnished by Frick-Reid and the fittings came from the Jarecki stocks. Water came from a Black, Syvalls & Bryson tank and the drilling belt was from the Gustin-Bacon stock, while the bits were heated with a Green oil and gas burner. Good lay-out, isn't it?

In the nearby enclosure was H. A. Clark, of the Clark Machine Co., Wichita Falls, with his steel folding and telescoping mast and other devices forming a complete, efficient, pulling-out machine. His neighbor was U. S. King, of the King Engine Co., makers of the King Hydro-Carbon Motor for drilling.

C. M. Murray, vice president of the Murray Tool & Supply Co., was chased to the derrick floor where he was proudly watching the Wickwire-Spencer steel line in operation with C. A. Perryman, of that company, sales agent from New York.

L. S. Allen of the Transit Pump & Engine Co., was busy with his booth but found time to point out George P. Wisdom, who pushes the sale of the Anderson oil engines, and I. G. Melrose and R. G. McGrath, Bostonians, from the Bear tractor factory. The two easterners reached for the cross beams in the top of the building every time the painted Osages started their "shimmy dances," accompanied by the Pawhuska yodelers. "Christmas bells will not seem the same to me in old New England," sighed Melrose. "Those savages, with nothing on but paint and winter underwear, should be forbidden the use of the musical sleigh bell," seconded McGrath. Both men forgot that side of it later when a fat squaw tried to teach her papoose to drive the tractor.

J. B. Simler was in charge of the Bruce-Macbeth Engine Co.'s 165-h.p. vertical four-cylinder gas engine of the latest type which has eliminated all the disadvantages of water jackets.

The Butler portable steam hammer, designed for the tool dresser and driller of modern tendencies, was in charge of L. A. Shearer, of the Shearer Steam Hammer Co., Tulsa. "Shore helps the toolie," mouthed a khaki-clad visitor.

The big C. & G. Cooper Co.'s engine and compressor was being turned over by an electric motor. The machine was one of the latest and carried many new improvements. F. H. Thomas, vice president of the company, with T. H. Hudgins, W. C. Kobel and B. C. Thiel, were kept busy assuring the swarms of flappers that "it most perfectly was not a walking beam."

Not for Play

In the Frick-Reid building, careless visitors tried to play with the big 27-inch Dreadnaught rotary, until advised by N. P. Erwin, sales manager, that the rotaries did not want to play. Several toes and fingers were hung up to show the later visitors that the Dreadnaught really does not care to play, not this season, Esther. Nor were the Joseph Reid engines put there for the purpose of giving little Edgar a ride "horseyback," according to W. C. Taylor of the sales department. Joseph Reid engines have a more serious duty to perform. National Transit pumps and the numerous other articles of the Frick-Reid display came in for their share of attention from the initiated as well as the profane. Will Reid, vice president of the company, from Pittsburgh, Pa., held court in front of the building and greeted old-timers and new-comers alike.

On the "main drag" O. B. Lemon, manager of the Clear Vision Sales Co., Inc., dispensed literature and information concerning the Raymond visible pumps and the well-known Gardner air compressors.

George W. Stage, assistant district manager, was in charge of the Continental Supply Co.'s booth.

The enthusiastic young man explaining the features of the huge pumps on a truck, and the cone-shaped hopper, was Erle P. Halliburton, of Duncan, Okla., owner of the Halliburton process for cementing oil wells. As most of the new wells in the entire Mid-Continent area are cemented by Halliburton, his trucks and men are kept busy.

Paul Armstrong, secretary of the Armstrong Bros. Tool Co., Chicago, showed the visitors the large stock of wrenches and other tools adapted to oil field usage. J. B. Okie, of the Interstate Pipe Line Co., was in charge of that booth in the absence of C. J. Hochenauer, district manager.

"Why do they use a packer?" asked one sweet young thing of her brand new husband. "Is it because they move so much?" she inquired. W. G. Long, Tulsa manager of the Robinson Packer Co., who overheard the conversation, assured the lady that packers had no connection with the roving characteristics of oil men. H. L. Kime, W. C. Wertz and Ray Vreeland seconded Mr. Long.

J. G. Michaelson, manager of the manufacturing department of The Braden Co., who housed the exposition, was enthusiastic concerning the show. "I took three orders for buildings Monday afternoon," he declared. "This show is a great thing for the oil business."

The International Supply Co., with R. S. McKeever, sales manager, in charge, had a working model of a standard drilling well in operation, which never failed to attract a crowd. The Oklahoma Iron Works booth was in charge of J. W. Sloan, Jr., sales manager.

Presentation of the story of gas in model form was the feature of the Oklahoma Natural Gas Co.'s exhibit, in charge of N. A. Newton. T. C. Andrews, of St. Louis, sales agent for the American Car & Foundry Co., showed the salient features of one phase of oil field transportation.

Electric welding was the feature of the Wilson Welder & Metals Co., Inc., exhibit. H. C. Price, of Bartlesville and W. M. Bastable, of New York City, sales manager for the company, told of the growing prominence of electric arc welding in putting up steel storage tanks.

Recalls Pioneer Days

"Well, young fellow, what can I do for you?" was the cheery greeting from Byron Post, sales manager for the Oil Well Supply Co. Whereupon, he told some of the deeds of valor performed by the Oil Well Supply Co. in days gone. "The Oil Well Supply Co. even sold the casing for the first well in the Mid-Continent," he said. "It was manufactured by the Reading Iron Co. and was sent to Neodesha, Kan., in 1892. We've grown considerably since then." H. Clark Reed, vice president, in charge of stores, was at the booth.

Refining and oil station equipment, including valves, tanks and unloading pumps, was the offering of Morrison Brothers, of Dubuque, Iowa, in their station. J. C. Walker, sales manager, was busy with numerous visitors.

The twisted and bent sections of National tube as exhibited in the company's booth, reminded the observer that someone must have waxed funny with the product of this concern. Something of the force behind a good gasser, something of the destructive power of nitroglycerine and the resisting strength of National tube were given in graphic form. "Oh, papa, it looks like a big stick of candy," was the comment on one twisted steel tubing, twisted and bent but not broken. W. L. Schaeffer, J. L. Smith, J. B. Graham and F. R. Breman, took turns explaining to the ladies that it would not be an easy job to twist the tubes back along normal lines as a part of their morning exercise.

Fishing tools were offered as special attraction at the booth of the Hinderliter Tool Co., presided over by H. B. Hendershot and F. J. Hinderliter. Other exhibits near the central section of the grounds were the Smith oil and gas separator; and also the Ballard oil and gas separator, put out by the Goddard-Thomas Manufacturing Co., as well as the Pioneer Tank & Boiler Co., of Tulsa, which had a good display of the parts used in their tanks.

Made Them Curious

The clatter and swish of the electric hoist in the Bovaird Supply Co.'s booth as salesmen demonstrated the Bovaird grip elevator and spider, attracted more than passing attention from everybody. "Wonder how deep that hole is?" said one elderly woman, thinking out loud. "It was started for China, but the drillers quit after going about 6 feet," assured D. D. Bovaird, of the company, who with F. D. Bovaird and W. M. Bovaird and

F. Charles Shugert, entertained and demonstrated to hundreds.

A. H. Jameson, chief engineer of the Reliance Steel Derrick Co., waxed technical and enthusiastic in his praise of his wares, sold in this district by E. L. Whitney Co., general sales agents, who also handle the Hazard wire lines.

"Charlie" Johnson, who claims that clamps are better than bolts for tanks, was at the Deck Clamp Tank Co.'s booth. He almost sold one to a newspaperman, who would have about as much use for it as a blind man has for a newspaper. That just goes to show how much "Charlie" thinks of his tanks. He got off his subject long enough to tell that the Deck company sells lots of other things, too.

The Foamite-Childs Corp., under the direction of H. P. Maginniss, sales agent, A. E. Canady, district manager and W. G. Grant, was busy displaying the good features of fire protection equipment.

Copper gaskets for collar leak clamps and other new features were a part of the wares displayed by the M. B. Skinner Co., with Mr. Skinner in charge. F. A. McMurray and F. R. McMurray knew everything about collars and clamps, and they sure said a mouthful. Real salesmen, they.

George J. Fix of Dallas, was showing off the steel replacement roller blocks for rotary drives as a part of the Baldwin Chain & Manufacturing Co.'s exhibit.

"Mickey" Brennan, of the Bradford Motor Works, hails from Bradford, Pa. He seemed proud of the fact, however, and confessed a sneaking desire to return to that village, from whence so many oil men have originated. George B. Morris said he liked Tulsa, and the exposition. He liked everybody. Everybody ought to like George. The two boys manufacture a complete line of pumping equipment, and specialize on the Bradford seamless steel working barrel.

The Midland Supply Co., of Pawhuska, displayed socket bowl slips and bailers.

Charles B. Smith, Jr., and Paul S. Reed, of the Tulsa office, showed the "innards" of the DeLaval centrifuges, used everywhere for treating cut oil.

Andrew W. Deacon and his brother, W. T., assured the public that "Metal Steel" paint was meant for all tanks. They handle the St. Louis Surfacer & Paint Co.'s product.

T. B. Carr and E. M. Booth were in charge of the picture display for the White Truck Co.

A new kind of pumping jack that seems to be the real stuff was displayed by B. V. Emery & Co., distributors for Lightning jacks and powers, manufactured by the Kansas City Hay Press Co. Mr. Emery's sales activities also include the D. & B. pumps and fittings and the Merco-Nordstrom plug valves.

A big racket and a big crowd was the feature of the exhibit by the Oil Well Supply Co. of the 20-inch all-steel Imperial rotary machine in actual operation in a derrick furnished by the National Turnbuckle Derrick Co., of Pawhuska. Several sweet young things who tried to climb to the top of the derrick were hauled down by T. C. Bloxom, in charge of operations, while Jack Baker and W. E. Shorts, swapped Peachy plug and stories with other practical men and dispensed literature for the edification of the uninitiated.

The first rotary, made in 1888, was proudly exhibited by the American Well & Prospecting Co., makers of the "Gumbo Buster" rotaries. Edgar Rittersbacher, treasurer, was in charge. His father was one of the pioneers in the equipment business.

Taken As Souvenirs

Nearby, the beautiful tassels from the fringed ends of the cordage displayed by the Republic Supply Co. captured the eye and attention of the children and ladies. Some souvenirs were taken during the absence of the man in charge.

A good crowd assembled to watch the operations of the Ohio Machine Tool Co.'s exhibit in operation, which shaved pieces from a large steel block with as much ease as a boy whittles a pine board. The Frost Vertical Turbo-Generator proved to be a new development of interest to field men.

Fred Key, vice president of the Key Boiler Equipment Co., was present at the booth of the Western Supply Co. and assisted with the exhibit of boiler and still appliances. L. E. Whitaker and W. F. Catlett showed the Phillips Carey Co.'s line of asbestos products for the oil industry.

The Empire Co.'s toy train of tank cars under the guidance of E. V. Kershner, attracted the attention of young and old alike. "You ought to see some of the old men," he said. "They stand there on their canes for 15 minutes at a stretch some times. Second childhood is the right word." F. W. Pierce and A. B. Collins dispensed samples of Empire light oil to the ladies who confessed to owning sewing machines.

Fullers earth, a necessity in the proper filtering of lubricants, was the exhibit of the Floridin Co., of Warren, Pa., in charge of W. L. MacGowan and A. C. Jackson.

Pipe line pumping engines were given prominence by F. W. Gay and J. H. Gallaway in the booth of the De La Vergne Machine Co., of New York City. J. A. Cadle showed the McSavaney Co.'s electric signs for filling stations.

The Deepwell pulling machine handled a load of 25,280 pounds with ease under the operation of O. A. Thompson and T. G. Laney, who utilized a Fordson tractor furnished by the Ryan Motor Co., of Tulsa. Electric drilling was advocated by D. U. Gaston and D. L. Cramb, factory representative, at the booth of the Southwestern General Electric Co.

Curving Iron Slivers

Five large machines formed the exhibit of the Blackman, Hill, McKee Ma-

(Continued on Page 121)

GLAD HANDERS OF THE EXPOSITION. SOME OF THE EQUIPMENT AND SUPPLY EXHIBITORS

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

GASOLINE AND NAPHTHA

CHICAGO DIST. (Based on Group 3)—	Oct. 9		Oct. 2		Sept. 25	
50-52 450 end point (Naphtha)	.06	.06½	.06	.06½	.06	.06½
56-58 450 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
58-60 437 end point (New Navy)	.06½	.07	.06½	.07	.06½	.07
60-62 400 end point	.08	.08½	.08¼	.08½	.08	.08½
64-66 375 end point	.09½	.09¾	.09½	.10	.09½	.10
68-70 360 end point	.10½	.11	.10½	.11	.11	.11½
OKLAHOMA (Group 3)—						
50-52 450 end point (Naphtha)	.06	.06½	.06	.06½	.06	.06½
56-58 450 end point	.06¼	.06¾	.06	.06½	.06	.06½
58-60 437 end point (New Navy)	.06¼	.06¾	.06¼	.06¾	.06½	.06¾
60-62 400 end point	.08¼	.08½	.08	.08½	.08¼	.08½
64-66 375 end point	.09¼	.09¾	.09¼	.09½	.09¼	.09½
68-70 350-365 end point	.10¾	.11	.10¾	.11	.10¾	.11
KANSAS—						
58-60 437 end point (New Navy)	.06¾	.07	.06¾	.07	.06¾	.07
NORTH TEXAS—						
48-52 450 end point (Naphtha)	.06	.06¼	.06	.06¼	.06	.06¼
50-52 440 end point (Naphtha)	.06	.06½	.06	.06½	.06	.06½
56-58 450 end point	.06	.06½	.06	.06¼	.06	.06¼
58-60 437 end point (New Navy)	.06½	.06¾	.06¾	.06¾	.06¼	.06¼
60-62 400 end point	.08	.08½	.07¾	.08¼	.07¾	.08¼
64-66 390 end point	.08½	.09	.08½	.09	.08½	.09
NORTH LOUISIANA—						
56-58 450 end point	.06¾	.07	.06½	.07	.06½	.06¾
58-60 437 end point (New Navy)	.07¼	.07½	.07	.07¼	.06¾	.07
60-62 400 end point	.08¼	.08½	.08¼	.08½	.08¼	.08½
ROCKY MOUNTAIN STATES—						
58-60 437 end point (New Navy)	.11¼		.11¼		.11¼	
PENNSYLVANIA—						
52 Naphtha	.11		.11		.11	
54 Naphtha	.11¼		.11¼		.11¼	
56 Gasoline	.11⅝		.11⅝		.11⅝	
58 Gasoline	.11¾		.11¾		.12	
60 Gasoline	.12¼		.12¼		.12¼	
62 Gasoline	.14		.14		.14	
64 Gasoline	.15		.15		.15	
66 Gasoline	.17½		.17½		.17½	
68-70 Gasoline	.18¼		.18¼		.18¼	

NATURAL GASOLINE

CHICAGO DIST. (Based on Group 3)—	Oct. 9		Oct. 2		Sept. 25	
Grade A, 72-78 under 375 e.p., rec. 90%	.08	.08¼	.07¾	.08	.07½	.07¾
Grade B, 76-82, 375 end point, rec. 85%	.07¼	.07¾	.07¼	.07¾	.07	.07½
Grade C, 80-88, 350 end point, rec. 78%	.07	.07½	.07	.07½	.07	.07½
OKLAHOMA (Group 3)—						
Grade A, 72-78, under 375 e.p., rec. 90%	.07¾	.08	.07¾	.08	.07½	.07¾
Grade B, 76-82, 375 end point, rec. 85%	.07¾	.08	.07½	.07¾	.07	.07½
Grade C, 80-88, 350 end point, rec. 78%	.07¼	.07¾	.07½	.07¾	.07	.07¼
Grade D, 88-92, 350 end point	.07½	.07¾	.07½	.07¾	.07	.07¼
NORTH TEXAS—						
80-84 compression	.07¼	.07½	.07	.07¼	.07	.07¼
84-90 compression	.07¼	.07½	.07	.07¼	.07	.07¼
72-76 absorption	.07½	.07¾	.07	.07½	.07¼	.07½
76-82 absorption	.07½	.07¾	.07	.07½	.07	.07½
NORTH LOUISIANA—						
Grade B, 76-82, 375 end point, rec. 85%	.07½	.07¾	.07¼	.07¾	.07¼	.07¾

MOTOR NATURAL GASOLINE (BLEND)

CHICAGO DIST. (Based on Group 3)—	Oct. 9		Oct. 2		Sept. 25	
60-62 450 end point	.06½	.06¾	.06½	.07	.06	.06½
64-66 450 end point	.06¼	.06¾	.06½	.07	.06¼	.06¾
OKLAHOMA (Group 3)—						
60-62 450 end point	.06¼	.06¾	.06¼	.06¾	.06¼	.06½
64-68 450 end point	.06½	.07	.06½	.07	.06¼	.06½
68-70 430-435 end point	.06¾	.07¼	.06¾	.07¼	.06¼	.06½
NORTH TEXAS—						
58-62 440 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
58-60 450 end point	.06¼	.06½	.06¼	.06½	.06¼	.06½
PENNSYLVANIA—						
*60-62	.11½		.11½		.11½	
*64-66	.11½		.11½		.11½	
*66-68	.11½		.11½		.11½	
*68-70	.11½		.11½		.11½	

*At Sistersville, W. Va.

BURNING OIL

CHICAGO DIST. (Based on Group 3)—	Oct. 9		Oct. 2		Sept. 25	
41-43 water white Kerosene	.03⅞	.04⅛	.04	.04½	.03¾	.04⅛
42-44 water white Kerosene	.04	.04¼	.04¼	.04½	.04	.04½
OKLAHOMA (Group 3)—						
41-43 water white Kerosene	.03⅞	.04⅛	.03⅞	.04⅛	.03¾	.04
42-43 water white Kerosene	.04	.04¼	.04	.04¼	.04	.04¼
44-46 Kerosene Distillate	.05	.05¼	.05	.05¼	.05	.05¼
45-47 Kerosene Distillate (500 end point)	.05½	.06	.05½	.06	.05½	.06
46-48 Kerosene Distillate (480 end point)	.06	.06½	.06	.06½	.06	.06½
KANSAS—						
41-43 water white Kerosene	.04½	.04¾	.04½	.04¾	.04½	.04¾
NORTH TEXAS—						
41-43 water white Kerosene	.03¾	.04	.03¾	.04	.03¾	.04
41-43 prime white Kerosene	.03½	.03⅝	.03½	.03⅝	.03½	.03⅝
40-42 prime white Distillate	.03¼	.03½	.03¼	.03½	.03¼	.03½
NORTH LOUISIANA—						
41-43 prime white Kerosene	.03¾	.04	.03¾	.04	.03¾	.04
42-43 water white Kerosene	.04	.04¼	.04	.04¼	.04	.04⅛
ROCKY MOUNTAIN STATES—						
40-42 prime white Kerosene	.06¾		.06¾		.06¼	
PENNSYLVANIA—						
43 Kerosene prime white	.06¾		.06½		.06	
45 Kerosene water white	.07¼		.07		.06½	
46 Kerosene water white	.07¾		.07½		.07	
47 Kerosene water white	.08¼		.08		.07½	
36 Miners' Neutral	.07		.07		.07	

FUEL OILS

CHICAGO DIST. (Based on Group 3)—	Oct. 9		Oct. 2		Sept. 25	
24-26 Fuel Oil (sellers' cars, Group 3)	.80	.90	.85	.90	.85	.90
22-24 (El Dorado)	.75	.85	.80	.85	.80	.85
18-20 (Smackover)	.65	.75	.70	.80	.70	.75
32-36 Gas Oil	.02⅜	.02½	.02⅜	.02½	.02⅜	.02½
38-40 Straw distillate	.03¼	.03½	.02⅞	.03⅛	.02⅜	.03
KANSAS—						
24-26 Fuel Oil	1.00	1.10	1.00	1.10	1.00	1.10
32-36 Gas Oil	.02⅜	.03	.02½	.02⅜	.02⅜	.02⅜
38-40 Distillate	.03½	.03¾	.03½	.03¾		
OKLAHOMA (Group 3)—						
24-26 Fuel Oil (buyers' cars)	.77½	.82½	.77½	.82½	.08	.85
24-26 Fuel Oil (sellers' cars)	.80	.85	.82½	.87½	.82½	.87½
28-30 Fuel Oil (sellers' cars)	.90	.95	.90	.95	.95	1.00
32-36 Gas Oil	.02⅜	.02½	.02¼	.02½	.02¼	.02¼
38-40 Straw Distillate	.03	.03¼	.03¼	.03½	.02⅞	.03⅛
NORTH TEXAS—						
24-26 Fuel Oil	.70	.75	.70	.75	.75	.80
26-30 Fuel Oil	.75	.80	.75	.80	.80	.85
32-36 Gas Oil	.02¼	.02⅜	.02¼	.02⅜	.02¼	.02⅜
36-38 Gas Oil	.02½	.02⅝	.02½	.02⅝	.02½	.02⅝
38-40 Straw Distillate	.02⅞	.03⅛	.02⅞	.03⅛	.02⅞	.03
NORTH LOUISIANA—						
20-22 Fuel Oil	.75		.75	.80	.80	.85
32-36 Gas Oil	.02¾		.02¾	.03	.02¾	.03
38-40 light straw distillate	.03		.03		.03	
GULF COAST (South Texas)—						
Gas oil	.03½	.03¾	.03½	.03¾	.03¼	.03½
Fuel oil	1.15	1.30	1.20	1.30	1.20	1.30
PENNSYLVANIA—						
30-34 Fuel Oil	.05½		.05½		.05¼	
36-40 Fuel Oil	.05⅞		.05¾		.05½	
34 Neutral	.08		.08		.07¼	

ROAD OILS

OKLAHOMA (Group 3)—	Oct. 9		Oct. 2		Sept. 25	
50-60 Asphaltic content	.95	1.05	.95	1.05	1.00	1.10
60-70 Asphaltic content	1.05	1.15	1.05	1.15	1.10	1.20
CHICAGO DIST. (Based on Group 3)—						
50-60 Asphaltic content (Group 3)	1.00	1.10	1.00	1.10	1.00	1.10

NEUTRAL OILS

OKLAHOMA (Group 3)—	Oct. 9		Oct. 2		Sept. 25	
Pale Neutrals:						
70-80 vis., 2½ color, 20-25 cold test	.04¼	.04½	.04¼	.04½	.04¼	.04½
100 vis., 2 color, 20-25 cold test	.06	.06¼	.06	.06½	.05¼	.05½
100 vis., 3 color, 20-25 cold test	.05½	.06	.05½	.06	.04¾	.05
150 vis., 3 color, 20-25 cold test	.11½	.12	.11½	.12	.11½	.12
150 vis., 4 color, 20-25 cold test	.11	.11½	.11	.11½	.11	.11½
160 vis., 4 color, 23-28 cold test	.13¼	.13¾	.13¼	.13¾	.13¼	.13¾
180 vis., 3 color, 23-28 cold test	.14	.14½	.14	.14½	.14	.14½
200 vis., 3 color, 23-28 cold test	.15	.15½	.15	.15½	.15	.15½
200 vis., 4 color, 23-28 cold test	.14¼	.14¾	.14¼	.14¾	.14¼	.14¾
220 vis., 3 color, 25-30 cold test	.16	.16½	.16	.16½	.16	.16¼
220 vis., 4 color, 25-30 cold test	.15¼	.15¾	.15¼	.15¾	.15¼	.15¾
240 vis., 4 color, 25-30 cold test	.16¼	.16¾	.16¼	.16¾	.16¼	.16¾
280 vis., 3 color, 25-30 cold test	.19¼	.20	.19½	.20	.19¼	.20
280 vis., 4 color, 25-30 cold test	.18½	.19	.18½	.19	.18½	.19
30 vis., 3 color, 25-30 cold test	.20	.20½	.20	.20½	.20	.20½
Red Neutrals:						
180 vis., 5 color, 23-28 cold test	.12½	.13	.12½	.13	.12¼	.13
180 vis., 6 color, 23-28 cold test	.11¾	.12¼	.11¾	.12¼	.11¾	.12¼
200 vis., 5 color, 23-28 cold test	.13¼	.14	.13¼	.14	.13½	.14
200 vis., 6 color, 23-28 cold test	.12¾	.13¼	.12¾	.13¼	.12¾	.13¼
220 vis., 5 color, 25-30 cold test	.14½	.15	.14½	.15	.14½	.15
220 vis., 6 color, 25-30 cold test	.13¾	.14½	.13¾	.14½	.13¾	.14½
240 vis., 5 color, 25-30 cold test	.15½	.16	.15¼	.16	.15¼	.16
240 vis., 6 color, 25-30 cold test	.14¾	.15¼	.14¾	.15¼	.14¾	.15¼
280 vis., 5 color, 25-30 cold test	.17¼	.18	.17¼	.18	.17½	.18
280 vis., 6 color, 25-30 cold test	.16½	.17	.16½	.17	.16¼	.17
300 vis., 5 color, 25-30 cold test	.16½	.17	.16½	.17	.16½	.17
150-160 vis., 1 color, 40-50 cold test	.06¼	.07	.06½	.07	.06½	.07
190-200 dark green, 40-50 cold test	.05½	.06	.05½	.06	.05½	.06
600 steam refined	.16		.16		.16	
590-600 Bright Stock	.28		.28		.28	
600-610 Bright Stock	.33		.33		.33	
Waxes:						
124-126 White Crude Scale Wax	.02¾	.02⅞	.02⅞		.02⅞	

REFINERY AND CRUDE PRICES

Quotations on Principal Refined Products and Crude Petroleum Markets in All the American Oil Fields

PENNSYLVANIA—

	Oct. 9	Oct. 2	Sept. 25
150, 3 color	.21½	.22	.22
180, 3 color	.24	.24	.24
200, 3 color	.26	.26	.26
220, 3 color	.29	.29	.29
600, steam refined	.10¾	.10¾	.10¾
635, steam refined	.12½	.11¾	.11¾
650, steam refined	.13	.12½	.12½
600, Pennsylvania flash	.16	.15½	.15½
630, Pennsylvania flash	.20	.20	.19½
*550, E filtered	.14	.13¾	.13¼
*600, E filtered	.16	.15¾	.15½
600, E filtered	.13¾	.13¾	.13½
600, D filtered	.20½	.20½	.20
550, E filtered	.13½	.13¼	.12¾
550, D filtered	.16	.15½	.15½
Pennsylvania Bright Stock	.31½	.32	.32
†122-124 White Crude Scale Wax	.03	.03	.03
†124-126 White Crude Scale Wax	.03½	.03¼	.03⅛
300 Mineral Seal	.07½	.07½	.07

*At Warren, Penn. †At New York City.

GULF COAST (South Texas)—

	Oct. 9		Oct. 2		Sept. 25	
Lubricating Stocks:						
Zero Black	.06	.07	.06	.07	.06	.07
No. 2 color, 100 vis., pale oil	.07	.08	.07	.08	.07	.08
No. 2½ color, 150 vis., pale oil	.09½	.11	.09½	.11	.09½	.10½
No. 3 color, 200 vis., pale oil	.10	.12	.10	.12	.10½	.11½
No. 3½ color, 300 vis., pale oil	.14	.15½	.14	.15½	.14	.15
No. 3½ color, 500 vis., pale oil	.16	.17	.16	.17	.16	.17
No. 3½ color, 750 vis., pale oil	.22½	.23½	.22½	.23½	.23	.24
No. 1½ color, 150 vis., pale, filtered	.20½	.21½	.20½	.21½	.20½	.21½
No. 2 color, 200 vis., pale, filtered	.23½	.25	.23½	.25	.23½	.24½
No. 2½ color, 500 vis., pale, filtered	.31	.33	.31	.33	.31	.33
No. 2½ color, 750 vis., pale, filtered	.40	.41	.40	.41	.40	.41
No. 5 color, 200 vis., red oil	.09	.10½	.09	.10½	.09	.10½
No. 5 color, 300 vis., red oil	.12	.13	.12	.13	.12	.13
No. 5 color, 500 vis., red oil	.14	.15	.14	.15	.14	.15
No. 5 color, 750 vis., red oil	.22	.23	.22	.23	.22	.23
No. 5, 1200 vis., red oil	.24	.26	.24	.26	.24	.26

NEW YORK DOMESTIC MARKET

	Oct. 9	Oct. 2	Sept. 25
Motor Gasoline:			
Greater New York, in steel barrels	.18½	.18½	.18½
New York State (outside Greater New York and New England, tank wagon	.18½	.18½	.18½
New Jersey, tank wagon	.18½	.18½	.18½
V.M.P. Naphtha, in steel barrels	.17½	.17½	.17½
Kerosene:			
Greater New York, tank wagon	.14	.14	.14
New York State (outside Greater New York and New England, tank wagon	.14	.14	.14
Gasoline in bulk, delivered at N. Y.	.10½	.10½	.10½
New Jersey, tank wagon	.13	.13	.13
Lubricating Oil (Industrial) at refinery, Bayonne, N. J.:			
Cylinder, extra light filtered, in barrels	.36½	.37½	.37½
Cylinder, light filtered, in barrels	.31½	.32½	.32½
Cylinder, Bright Stock	.44	.44½	.44½
Cylinder, steam refined (600)	.21½	.22½	.22½
Black, in bulk	.09½	.08½	.08½
Bloomless, white, 30-31 gravity, 170 vis.	.43	.41½	.41½
Bloomless, 885 specific gravity	.16½	.16½	.16½
Red Paraffin:			
170 viscosity	.18½	.19	.19
212 viscosity	.20	.21	.21
265 viscosity	.22	.23	.23
295 viscosity	.25	.26	.26
Paraffin, 903 specific gravity	.22½	.24½	.24½
Lubricating Oil (motor), discount to dealers:			
Cylinder, in barrels	1 00	1 00	1 00
Steam tractors, in barrels	1.00	1.00	1.00
Transmission and differential, in barrels	.09½	.09½	.09½
Motor Grease, in barrels, pounds	.13	.13	.13
*Fuel Oil:			
Bunker Oil, 14 plus, delivered in barges, bbl.	1.45	1.45	1.60
Diesel Oil, at refinery, gallon	.03¾	.04	.04½
Furnace oil, tank wagon, gallon	.10	.10	
Gas Oil, delivered in New York	.04¼	.04¼	.05
Wax, fully refined:			
120-122 a.m.p.	.03⅜	.03¼	.03¼
125-127 a.m.p.	.03¾	.03¾	.03¾
130-132 a.m.p.	.04¼	.04¼	.04¼
135-137 a.m.p.	.05¼	.05¼	.05¼

*Lighterage, 6.5c a barrel extra.

NEW YORK EXPORT PRICES

	Oct. 9	Oct. 2	Sept. 25
Motor Gasoline, in cases, gallon	.20.15	.20.65	.20.65
Motor Gasoline, U. S. Navy, spec., gallon	.11.5	.12	.12
Naphtha, 60° F., 59-61 spec. grav	.12.5	.13	.13½
Naphtha, 60° F., 63-66 spec. grav	.14.5	.15	.15½
Naphtha, 60° F., 66-68 spec. grav	.16.0	.16½	.17
Kerosene:			
Standard white, in bulk, gallon	.05½	.05½	.05½
Standard white, in barrels, gallon	.12½	.12½	.12½
Standard white, in cases, gallon	.15.4	.15.4	.15.4
Water white, in bulk, gallon	.06½	.06½	.06½
Water white, in barrels, gallon	.13½	.13½	.13½
Water white, in cases, gallon	.16.4	.16.4	.16.4

CRUDE OIL PRICES

September 19.—The Humble Oil & Refining Co. adopted the Prairie Oil & Gas Co.'s prices for North Texas

September 20.—The Joseph Seep Purchasing Agency reduced all grades of Pennsylvania crude 25 cents. The Ohio Oil Co. reduced Lima, Indiana, Illinois, Princeton, Plymouth, Waterloo and Wooster crudes 25 cents. Cabell, Somerset medium and Somerset light oils were reduced 15 cents per barrel as was also Corning crude. The Texas Co. adopted the Prairie Oil & Gas Co.'s schedule for all districts except Healdton grades, where the Magnolia Petroleum Co.'s quotations on the lower grades are used.

September 21.—The Ohio Oil Co. and the Mid-West Refining Co. made the following changes in Wyoming crude quotations: Grass Creek, Elk Basin, Big Muddy and Rock Creek crudes were reduced 35 cents per barrel. Lance Creek crude was reduced 50 cents and Mule Creek crude was reduced 20 cents per barrel. Salt Creek, Osage, Greybull, Torchlight and Hamilton Dome crudes were also reduced 35 cents per barrel.

October 8.—Humble Oil and Refining Co. announced a new schedule of prices for North and Central Texas crudes amounting to reductions in some gravities and advances in others. New prices are given under the North Central Texas quotations. Company takes 100 per cent runs under the new prices.

October 9.—Standard Oil Co. of California reduced California crudes of 22° gravity and above from 2 to 28 cents a barrel. The Texas Co. reduced North and Central crudes of 33° to 39.9° gravity, 20 cents and 40° gravity and above, 25 cents. Company agreed to take 100 per cent of the runs.

Oklahoma and Kansas

Below 33°	$ .90
33° to 39.9°	1.30
40° and above	1.75
(Magnolia Petroleum Co., and The Texas Co., Healdton grade)	
Below 28°	$ .50
28° to 30.9°	.70
31° to 32.9°	.90

Arkansas and North Louisiana

Caddo, 38° and above	$1.25
35° to 37.9°	1.15
32° to 34.9°	1.10
Below 32°	.75
Homer, 35° and above	1.25
33° to 34.9°	1.15
31° to 32.9°	1.10
Below 31°	.75
Haynesville, 33° and above	1.20
Below 33°	1.10
El Dorado, 33° and above	1.25
Below 33°	1.10
Bull Bayou, 38° and above	1 15
35° to 37.9°	1.05
32° to 34.9°	1.00
De Soto	1.25
Crichton	.90
Bellevue	.75
Smackover, 26° and above	.75
25° to 25.9°	.60
24° to 24.9°	.50
Below 24°	.40

Wyoming and Montana

Rock Creek, (Wyo.)	$ .90
Salt Creek	.90
Big Muddy	.75
Mule Creek	.75
Grass Creek	1.35
Elk Basin	1.35
Lance Creek	1.20
Osage	1 35
Cat Creek (Mont.)	1.70
Sunburst (Mont.)	.70
Greybull and Torchlight	1.35
Hamilton Dome	.90

Lander and Lost Soldier based on contracts covering entire production of fields.

North Texas and North Central Texas

Corsicana light	1.00
Corsicana heavy	.50
Mexia	1 00
Currie	1.00
Powell	1.00
Moran, Burkburnett, Electra, Archer County, Stephens County, Strawn, Ranger, Desdemona, Pioneer and Young County,	
Below 33°	$ .90
33° to 39.9°	1.30
40° and above	1.75
The Texas Co. prices:	
33° to 39.9°	1.10
40° and above	1.25
Humble Oil and Refining Co. prices:	
Below 30°	.90
30° to 32.9°	1.10
33° to 35.9°	1.20
36° to 38.8°	1.35
39° and above	1.50

Gulf Coast

Gulf Pipe Line Co., Goose Creek, Hull, Sour Lake, Batson, Saratoga, Spindletop, Orange, Vinton, Edgerly, Jennings	$1.00
Grade "B," Pierce Junction, Blue Ridge	.90
The Sun Pipe Line Co., Grade "A," Humble, Hull, Goose Creek, Orange, Spindletop, Saratoga, Batson, Dayton, Sour Lake	1.00
Humble Pipe Line Co., Goose Creek, Hull, West Columbia, Orange	1.00
Grade "B," Pierce Junction	.90
Texas Pipe Line Co., Humble, West Columbia, Orange, Sour Lake, Saratoga, Batson, Vinton, Jennings, Markham	1.00
Sinclair Pipe Line Co., West Columbia, Damon Mound	1.00

California

14° to 19.9°	$ .60
20° to 20.9°	.61
21° to 21.9°	.62
22° to 22.9°	.63
23° to 23.9°	.64
24° to 24.9°	.65
25° to 25.9°	.66
26° to 26.9°	.67
27° to 27.9°	.68
28° to 28.9°	.69
29° to 29.9°	.70
30° to 30.9°	.71
31° to 31.9°	.72
32° to 32.9°	.73
33° to 33.9°	.74
34° to 34.9°	.75
35° gravity and above	.76

Eastern States

Penna Grade Oil in New York Transit Lines	$2.75
Bradford District Oil in National Transit Lines	$2.75
Penna Grade Oil in National Transit Lines	2.50
Penna Grade Oil in South West Pa. Pipe Lines	2.50
Penna Grade Oil in Eureka Pipe Line Lines	2.50
Penna Grade Oil in Buckeye Pipe Line Lines	2.50
Corning Grade Oil in Buckeye Pipe Line Lines	1.45
Cabell Grade Oil in Eureka Pipe Line Lines	1.35
*Somerset Medium Oil in Cumberland Pipe Line Lines	1.25
*Somerset Light Oil in Cumberland Pipe Line Lines	1.40
Ragland Grade Oil in Cumberland Pipe Line Lines	.75
Lima	1 68
Wooster	1.50
Illinois	1.47
Indiana	1.48
Princeton	1.47
Plymouth	.85
Waterloo	.95
†Petrolia, Canada	2.28
†Oil Springs, Canada	2.35

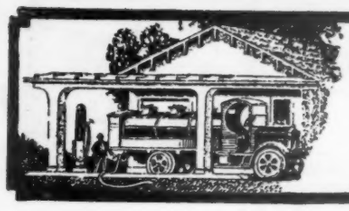
*Somerset oil commands 6 cents over the above posted price.

†Plus Government bounty of 52½c.

Mexican Crude

*Tuxpam (f.o.b. Mexican ports)	$1.00
†Panuco (f.o.b. Mexican ports)	.55
Tuxpam (New York)	1.55
Panuco (New York)	.97

*Plus 30.34c tax. †Plus 16.93c tax. Prices based on contracts.



TANK WAGON MARKETS

Tank wagon quotations for gasoline and kerosene in United States, as furnished by the larger marketing concerns, Oct. 2

STANDARD OIL CO. (INDIANA)

Main Service Station Price

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Chicago district	13.4	..	15.4	10.

Tank wagon prices on Jan. 25, 1921, down 2c on g., 3c on k., Feb. 1, both down 2c; April 28, both down 3c; July 25 g. down 2c; Oct. 15, g. up 1c; Oct. 23, k. up 1c; Nov. 9, g. up 1¼c; k. 1c; April 10, 1922, g. up 1¼c; May 8, g. up 1c; June 27, both up 1c; July 19, g. down 2c; k. down 1c; Oct. 10, g. down 2c; Oct. 31, g. down 1c; Feb. 9, 1923, g. up 1c; Feb. 20, g. up 1c; Aug. 14, g. down 6.6c; Oct. 4, k. down 1¼c.

Decatur, Ill.	14.2	..	16.2	10.5
Joliet	13.4	..	15.4	10.7
Peoria	14.2	..	16.2	10.5
Quincy	14.0	..	16.0	10.3
Davenport, Ia.	14.5	..	16.5	10.9
Des Moines	12.5	..	14.5	10.9
Keokuk	14.5	..	16.5	10.9
Sioux City	14.0	..	16.0	10.5
Duluth, Minn.	15.2	..	17.2	11.6
Minneapolis	12.9	..	14.9	11 6
La Crosse, Wis.	15 2	..	17 2	11.2
Milwaukee	14.0	..	16.0	10.2
Madison	14.3	..	16.3	10.5
Detroit, Mich.	12.8	..	14 8	10 5
Grand Rapids	14.7	..	16.7	11.1
Saginaw	14 9	..	16 9	10.5
Evansville, Ind.	16.0	2.0	18.0	10.5
Fort Wayne	16.4	2.0	18.4	10.9
Indianapolis	16.2	2.0	18 2	10.7
South Bend	16.4	2 0	18.4	10.9
Fargo, N. D.	16.6	1.0	18.6	12.6
Huron, S. D.	15.5	2.0	15.5	10.1
Sioux Falls	15.5	2.0	15 5	11.6
*Kansas City	12 9	1.0	14 9	9.3
Springfield	13.8	..	15.8	10.0
St. Louis	12.1	..	14.4	10.0
*St. Joseph	14.3	.5	16 3	10.2
Wichita, Kans.	12.8	..	14.8	9.8

*City tax

PENNSYLVANIA-DELAWARE AND PART NEW ENGLAND

Atlantic Refining Co.

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Pittsburgh, Pa.	18.0	*	23.0	14 0
Philadelphia	18.0	*	23.0	14.0
Dover, Del.	19.0	1.0	22.0	14.0
Wilmington	19.0	1.0	22.0	14.0
Providence, R. I.	18 5	..	21.0	14.0
Springfield	18.5	..	21.0	14.0
Worcester	18.5	..	21.0	14.0
Hartford, Conn.	18.5	*	22.0	14.0
New Haven	18.5	*	22.0	14 0
Boston	18.5	..	21.0	14.0

*Pennsylvania tax of 2 cents and Connecticut tax of 1 cent are collected by the dealer and paid by him direct to the State.

SOUTHERN DISTRICT

Standard Oil Co. (Kentucky)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Atlanta, Ga.	20.0	3.0	22.5	15.0
Augusta	20.0	3.0	22.0	14.0
Macon	20.0	3.0	22.0	14.5
Savannah	18.0	3.0	20.0	13.0
Birmingham, Ala.	18.0	2.0	20.0	14.5
Mobile	17.0	2.0	19.0	13.5
Montgomery	18.0	2.0	20.0	15.0
Clarksdale, Miss.	16.0	1.0	18.0	13.0
Jackson	15.0	1.0	17.0	11 0
Natchez	15.5	1 0	17.5	12.5
Vicksburg	15.5	1.0	17.5	12.5
Jacksonville, Fla	18.0	3.0	20.0	13.0
Miami	29.0	3.0	22.0	14.5
Pensacola	18.0	3.0	20.0	13.5
Tampa	18 0	3.0	20.0	13.0
Covington, Ky.	17.0	1.0	19.0	13.0
Lexington	17.0	1.0	19.0	14.0
Louisville	16.0	1.0	18.0	13.0

ROCKY MOUNTAIN DISTRICT

Continental Oil Co.

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Denver, Colo.	17.0	2.0	19.0	13 5
Glenwood Spgs.	21.0	2.0	....	17.5
Pueblo	17.0	2.0	19.0	13.5
Basin, Wyo.	16 0	1.0	....	14.0
Casper	14.0	1.0	16.0	12.0
Cheyenne	15.5	1.0	17.5	13.5
Cody	17.0	1.0	....	15.0
Lander	16.0	1.0	....	14.0
Billings, Mont.	19.5	2.0	21.5	15.5
Butte	21.0	2.0	23.0	16.0
Great Falls	21.0	2.0	23.0	17.0
Helena	21.0	2.0	23.0	17.0
Miles City	20.5	2.0	22.5	16.5
Boise, Idaho	20.0	2 0	22.0	19.0
Salt Lake, Utah	22.0	2.5	24.0	16.5
Ogden	22.0	2.5	24.0	16.5
Albuquerque, N. M.	18.0	1.0	20.0	15.5

ATLANTIC COAST DISTRICT

Standard Oil Co. (New Jersey)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Newark, N. J.	18.5	..	21.5	13.0
Atlantic City	18.5	..	21.5	13.0
Annapolis, Md.	19.0	1.0	22.0	13.0
Baltimore	19.0	1.0	22.0	12.0
Cumberland	19.0	1.0	22.0	14.0
Washington	18.0	..	21 0	12.5
Norfolk, Va.	20.0	3.0	23.0	12.0
Petersburg	21.0	3.0	23.0	13.5
Danville	21.0	3.0	23.0	14.0
Richmond	21.0	3.0	23.0	12.5
Roanoke	21.0	3.0	23.0	14.0
Keyser, W. Va.	20.0	3.0	23.0	14.0
Charleston	20.0	3.0	23.0	12.5
Parkersburg	19.0	3.0	21.0	11.0
Wheeling	20.0	3.0	23.0	12.5
Charlotte, N. C.	21.0	3.0	23.0	13.5
Hickory	21.5	3.0	23.5	14.0
Mt. Airy	21.0	3.0	23.0	13.5
Salisbury	21.5	3.0	23.5	14.0
Charleston	19.0	3.0	22.0	11.5
Columbia	21.0	3 0	23.0	13.5

SOUTHWESTERN DISTRICT

Magnolia Petroleum Co.

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Dallas Tex.	7.0	1.0	10.0	10.0
Fort Worth	7.0	1.0	10.0	10.0
Houston	14.0	1.0	18.0	11.0
San Antonio	10.0	1 0	13.0	11.0
El Paso	14.0	1.0	17.0	12.0
Muskogee, Okla.	12.0	1.0	16.0	9.0
Oklahoma City	10.0	1.0	14 0	9 0
Tulsa	11.0	1.0	14.0	9.0
Ft. Smith, Ark.	15.5	3.0	18.5	11 0
Little Rock	17.0	3.0	20.0	12.0
Texarkana	17.0	3.0	20.0	11.0

CENTRAL SOUTH DISTRICT

Standard Oil Co. (Louisiana)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
New Orleans, La	13.5	1 0	16.5	11.0
Alexandria	14.5	1.0	17.5	12.0
Baton Rouge	13.0	1.0	16.0	10.5
Lake Charles	14.5	1.0	17.5	12.0
Shreveport	14.5	1.0	17.5	12.0
Memphis, Tenn.	16 0	2.0	19.0	13.0
Chattanooga	16.5	2.0	19.5	13.5
Knoxville	17.5	2.0	20.5	14 0
Nashville	16.5	2.0	19.5	13 0
Bristol	18.0	2.0	21.0	14.5
Little Rock Ark	17.5	3 0	20.5	12.0
West Helena	17.5	3.0	20.5	12.0

NEW YORK AND PART OF NEW ENGLAND DISTRICT

Standard Oil Co. (New York)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Albany, N. Y.	19.0	..	21.0	13.0
*New York	18.5	..	22.0	14.0
Buffalo	16.0	..	20.0	14.0
Rochester	17.5	..	20 0	13.0
Syracuse	17.0	..	19.0	12.0
Boston, Mass.	18.5	..	21.0	12.0
Providence, R. I.	18.5	..	22.0	14.0
Augusta, Me.	18.5	1.0	23.0	14.0
Manchester	18.5	1 0	23.0	14.0
Burlington, Vt.	18.5	1.0	23.0	14.0

*Price in steel barrels.

OHIO

Standard Oil Co. (Ohio)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
All Ohio points	17.0	..	19.0	13.0

PACIFIC COAST DISTRICT

Standard Oil Co. (California)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
San Francisco	13.0	2.0	16.0	15.5
Los Angeles	12.0	2.0	15 0	15 5
Fresno	14.5	2.0	17.5	17.5
Reno, Nev.	17.5	2.0	20.5	19.0
Portland, Ore.	16.0	3.0	19.0	16.5
Seattle, Wash.	14.0	1.0	17.0	16 5
Tacoma	14.0	1.0	17.0	16.5
Phoenix, Ariz.	18.5	3.0	21.5	21.5
Honolulu, H.	13 5	..	16.5	17.5
Juneau, Alaska	14.5	..	17.5	18.0

NEBRASKA

Standard Oil Co. (Nebraska)

	Gasoline Tank wagon	Gasoline Incldg tax of	Gasoline Service station	Kero. Tank wagon
Omaha	14.25	..	16.25	11.75
Crawford	15.0	..	....	13.0
McCook	15.75	..	17.75	13.75
Norfolk	14.75	..	16.75	12.5
North Platte	15.75	..	17.75	13.75
Scotts Bluff	15.25	..	17.25	13.0

TANK WAGON CHANGES

Effective October 2, Magnolia Petroleum Co. reduced gasoline, tank wagon and service station prices 4 cents at San Antonio, Texas.

Effective October 3, Standard Oil Co. of Indiana reduced gasoline tank wagon and service station prices 2 cents at Minneapolis.

Effective October 4, Magnolia Petroleum Co. reduced gasoline tank wagon 1 cent and service station prices 3 cents at Tulsa; same company reduced gasoline tank wagon and service station prices 2 cents at El Paso; same company reduced gasoline tank wagon and service station price 1 cent at Fort Smith, Ark. Standard Oil Co. of Indiana reduced kerosene tank wagon prices 1½ cents throughout entire territory with exception of North Dakota, where reduction was 2.1 cents; same company reduced gasoline tank wagon and service station prices 1 cent at Kansas City and 1½ cents at St. Louis.

Effective October 5, Standard Oil Co. of Kentucky reduced gasoline tank wagon and service station price 1 cent at Jackson, Miss.

Effective October 6, Standard Oil Co. of Kentucky reduced gasoline tank wagon and service station prices 1 cent in Kentucky. Magnolia Petroleum Co. reduced gasoline tank wagon 1 cent at Dallas and Fort Worth.

GROSS PRODUCTION OF GULF COAST AREA

HOUSTON, Tex., Oct. 8.—Gross production in the Gulf Coast Pools and the southwest districts, not including the Luling Field, is estimated at 3 110 940 bbls. for the month of September. This is a decrease of 321,287 bbls. from the estimated gross output during August.

The Hull Pool shows the largest decrease, with 87,382 bbls. less than during August. Goose Creek fell off 69,235 bbls. and Orange declined 60,445 bbls. West Columbia decreased 53,423 bbls. during September compared with the previous month. The old Sour Lake district shows a decline of 21,128 bbls. and Vinton is off 3,510 bbls. Humble dropped off 4,400 bbls.

Deducting the southwest districts from the total makes the gross for the Gulf Coast Pools alone 2 889,840 bbls. against an estimate of 3,206 851 bbls. in August. These figures reflect the effect of the curtailment policy adopted by the major operating companies in the Coastal region. The gross for September is the lowest of any month of the present year, except during February when extremely bad weather and storms cut it down to 3,094,620 bbls.

The following table gives the daily average and gross for each district:

District—	Daily Average	Gross Bbls.
Batson	1,359	40,770
Blue Ridge	881	26,430
Barber Hill	472	14,160
Dayton	81	2,430
Damon Mound	2 119	63,570
Edgerly	421	12,630
Goose Creek	13,869	416,070
Humble	6,331	189,930
Hull	22,706	681,180
Jennings	734	22,020
Markham	105	3,150
Orange	17,417	522,510
Pierce Junction	865	25,950
Spindletop	796	23,880
Saratoga	1,764	52,920
Sour Lake	5,670	170,100
Somerset and P. Pintas	3,465	103,950
Vinton	5 957	178,710
Welsh and Anse La Bute	87	2,610
West Columbia	14,694	440,820
Miscellaneous (Laredo, Milam County, Big Creek, Big Hill, High Island, etc	3,905	117,150
Total September	103,698	3,110,940
Total August	110,717	3,432 227
Decrease		321,287

START FORT WORTH REFINERY

According to an announcement of the past week the Texas Pacific Coal & Oil Co. has acquired a half interest in the properties of the Invaders Oil Corp. of Fort Worth. The latter company has a refinery located at Fort Worth, formerly owned by the Montrose Refining Co. The plant, which has a capacity of 5,000 barrels, has been shut down for some time. It is understood the Texas Pacific Coal & Oil Co. will place the plant in shape to operate at once.

The company recently completed a refinery at Wynnewood, Okla., which is operating at the present time. The company has a large production in the North Texas and Oklahoma Fields.

NATION WIDE DEMAND FOR THE JOURNAL'S EXPOSITION NUMBER

From the comments and compliments paid to the big Petroleum Exposition Number of The Oil and Gas Journal it appears to have been regarded by our readers and those who visited the International Petroleum Exposition and Congress as one of the outstanding features of the occasion.

The policy of continually seeking to improve this publication, which has marked the progress of The Oil and Gas Journal, had accustomed readers to look for an exceptional issue in connection with the opening of the exposition, but, to judge from the enthusiastic expressions of callers and correspondence received, the actual publication so far exceeded the most favorable expectations that it was universally acclaimed a really marvelous production.

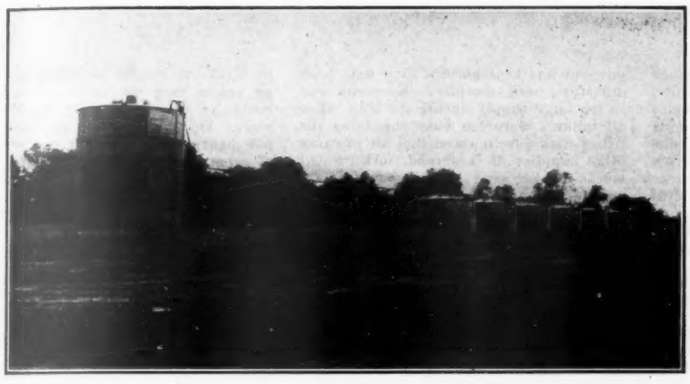
First, the size of the publication evoked utterances of surprise, but when an examination disclosed that the quality was there as well as the quantity, that the 64 pages of beautiful Rotogravure reproductions, a work of art in itself, was matched by the interest and excellence of the rest of the edition, admiration was unstinted.

The special articles assembled for this Exposition Number, dealing with the progress, present condition, and future of the industry, were declared just what is needed at this time to furnish a proper perspective of the situation. It was said that never had any industry been so comprehensively and accurately described, never had any trade or business been represented by a publication so handsome, so informing and so timely.

Throughout the week a deluge of inquiries was received for additional copies of the Exposition Number. Visitors wished to send them home and Mid-Continent oil men desired to mail them to distant friends to show them what was being accomplished here. Many regular subscribers and readers called for extra copies to be preserved as historical mementoes of the first world's oil exposition.

Many complimentary notices appeared in the newspapers throughout the country, voicing professional pride in what was described as a product of the highest editorial and typographical efficiency, the verdict being that the Petroleum Exposition Number of The Oil and Gas Journal set a standard of trade publications that had never been approached. The Oil and Gas Journal wishes to make its acknowledgments but would add that the desire was to make a publication that would be worthy of the occasion and of the Oil Industry, and it takes this opportunity to thank all who contributed to the success of that epochal edition.

PERFECTION VAPOR PRESSURE TANKS
WOOD, AND BOLTED STEEL TANKS



Many concerns are standardizing on complete Perfection batteries as shown in the picture on the left. Photograph was taken in an Oklahoma oil field.

Write for Your Copy "The Proof of The Pudding"

Truth sometimes is stranger than fiction.

Possibly thats why a lot of our friends have been telling us our claims for Perfection tanks sound somewhat exaggerated.

"Stopping evaporation, holding up gravity, reducing fire risks, providing lease fuel, etc," does sound almost too good to be true.

For that very reason, we are happy to announce a booklet entitled, "The Proof of the Pudding," which is just off the press.

Every clai mwe have made for Perfection Vapor Pressure tanks is borne out by testimonial letters from our satisfied customers.

Every lette ris reproduced exactly as written. Every statement we have ever made is backed up over signatures of men whose word you can never doubt.

They point out how you can also save yourself hundreds and thousands of dollars—cutting your storage bills to almost nothing.

We only have a limited number o fthese booklets and we expect the supply to be rapidly exhausted.

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Chief Problems Facing the Oil Industry

Survey of The Situation Suggests the Fundamental Cause of the Present Unsettlement Agitating the Entire Oil Bnsiness.

By N. O. Fanning

NEW YORK, Oct. 8.—What are the chief problems facing the American petroleum industry at the present time? From the numerous statements made by leading oil men, the resolutions passed at meetings of various oil associations, and the many articles written on the subject during the past five years, the following stand out:

(1) Necessity of controlling crude oil production so as to keep it as close to current requirements as possible.
(2) Need of locating refineries where they will be of value to the industry, and profitable to those operating them.
(3) Supplying various products of petroleum in the proportions in which they are demanded.
(4) Attainment of rational freight rates on petroleum products, especially with reference to relationship between land and water transportation.
(5) Perfection of statistics regarding production, consumption and the movement of crude and refined oils.
(6) Formulation of definite national policy regarding the petroleum industry.

A careful study of the foregoing will, it is believed, lead to recognition of the fundamental causes of unsettlement in the oil business. They represent problems which have been discussed for many years; some have been partly solved; some temporarily solved. Others have not even been considered by the petroleum industry as a whole.

Problem of Controlling Output

The first problem, that of the need for controlling crude oil production, is generally regarded as the most difficult of all. Especially is this true because it has two sides. It would be necessary, if any actual plan for controlling production were worked out, to provide not only for curbing output when it tends to go too high, but also to provide oil when existing fields tend to give out and consumption increases.

Several leading European countries have restrictions on the development of their home oil fields, but the result of these restrictions is that they produce scarcely any oil at all, depending meanwhile on the fields of the United States, Mexico, etc. The United States has been able to meet the growing demand for oil only by developing to an unlimited extent the fields within its own borders. If development were seriously checked, it is a question whether new output could be found at once, if it were required.

It is economical to store oil in the ground, and American oil interests do this wherever possible. But they can do so only when they have a large surplus above ground, for oil underground is uncertain in quantity and the degree of recovery is not always ascertainable until drilling has been accomplished. The United States cannot depend on oil which may or may not exist underground. In order to assure consumers of a future supply, which is particularly necessary in the case of gasoline and fuel oil, there must be a surplus actually in sight. Oil companies cannot make promises ahead based on oil in the ground.

Production the Pillar

If the work of drilling for petroleum in the United States were taken out of the hands of private individuals and companies, and were put into the hands of one large corporation (perhaps Government controlled) it would constitute practically Governmental control of the oil industry, for production is the pillar of the industry. It might, furthermore, force American refiners into foreign fields sooner or later. Many of them are going there already. It is doubtful that one corporation could do the work now accomplished by more than 50,000 separate oil producers. It is also problematical on what basis American oil producing properties could be transferred out of private ownership without injustice in one quarter or another.

The Anglo-Persian Oil Co. can control the output of the Persian fields because it owns the entire producing area, and also vast areas surrounding it. There is no possibility of competition. However, Persia, with its annual output of only 25,000,000 bbls. or so, is incomparable to the United States. The same can be said of any other field outside the United States. The problem of controlling production in the United States would have to be accomplished by separate fields—but with the division of the territory into small groups, the work would just have started.

The committee of the American Petroleum Institute now making a study of this problem has a gigantic task, and should have the backing of the entire oil industry. In fact, its work is of vital importance even to owners of prospective oil property. It would seem especially necessary for Mid-Continent producers to keep in touch with this situation.

Location of Refineries

The necessity of locating oil refineries where they can be within reasonable reach both of crude oil supplies and the markets is a generally recognized business fact. Nevertheless, there are numerous plants in the United States which are plainly uneconomically situated. The matter not only of geographical distance, but also the geographical location, with reference to freight rates, is often ignored or overlooked for one reason or another.

It is coming to be more generally realized that Mid-Continent refineries are handicapped in competition with coastal refineries because of the discrepancy between freight rates charged by pipe line companies and railroads and those charged by the ocean carriers.

The coastal refiner is gradually getting more and more of the business in his territory, which is usually the richest, besides having an advantage in supplying export requirements. Witness the growth of the Standard Oil Co. of New Jersey, Standard Oil Co. of New York, Gulf Oil Corp., The Texas Co. and many other companies similarly situated.

Refineries located in the heart of the large oil fields are not necessarily well situated unless they are within easy reach of their markets. Fields close to seaports where oil can be shipped by water provide good locations for refineries. The Mid-Continent Field, however, would seem to be too far inland, and there should probably be no more refineries in that district than are necessary to supply the local demand for oil, the remainder of the crude oil production to be shipped out by pipe line.

Supplying Demand for Oil

One of the biggest problems the petroleum industry has had during most of its history has been that of supplying the various products in the correct proportion with the amount and grade of crude oil available.

When kerosene was the principal product of crude oil, a large percentage of oil was wasted. Gasoline was dumped into nearby creeks. As the demand for gasoline materialized and grew, the production of high grade crude oil for this purpose was kept abreast of it only with difficulty, until recently. Kerosene was in too large supply during the war, when oil tankers were too busy supplying the Allies with gasoline and fuel oil to carry large supplies of it abroad. At present stocks of kerosene in this country are only about half as large as they were then, and the demand is increasing.

Fuel oil, which was of comparatively small value 20 years, or even 10 years, ago, is coming into such wide use that the oil refiner is now anxious to uncover heavy oil fields, whereas five years ago there was too much heavy oil and not enough light. With the development of furnace oil as a product to use in home oil burners, the need for heavier oils is going to increase at a faster rate than ever.

Rational Freight Rates

It costs about 3 cents per gallon to ship Mid-Continent gasoline to New York by water, and about 4½ cents by rail. The Mid-Continent refiner, already established in that territory, cannot ship his product East at a profit in competition with Gulf Coast or Atlantic Coast refiners. Yet the refining capacity in Oklahoma and Kansas alone represents approximately one-fifth of the capacity of the entire country. The latest Bureau of Mines report showed that of 259,500 bbls. daily refining capacity in the vicinity of the port of New York, only 1,100 bbls. capacity was shut down. In Oklahoma and Kansas, combined, of 395,150 bbls. capacity, 102,850 bbls. capacity was shut down. Either rail rates must come down or the idle refining capacity in the Mid-Continent Field will have to be dismantled, under such conditions. Mid-Continent refiners must consider the long-haul movement, as they must find an outlet for their output either in the northern part of the Middle West, or east of the Appalachian Mountains. It is estimated that at present the long haul rail movement of petroleum products averages only about 225,000 bbls. daily, while there is a potential movement, if rates were such as to enable competition with water shipments, of at least 375,000 to 400,000 bbls. daily from the Mid-Continent alone.

Perfection of Statistics

The greatest obstacle to the collection and dissemination of reliable and valuable statistics on oil is the unwillingness of the individuals engaged in production and refining to cooperate with the agencies which are trying to collect and disseminate them. There has been a great broadening of the viewpoint of such individuals since the war, when national safety required co-operation. But there is not only a disposition to withhold statistics, but to question those which are published in good faith. Unreliable figures are worse than no figures at all; that is granted. But reliable statistics form the basis on which the industry's problems can be worked out correctly. Either the Government or some cooperative oil association, should be given all possible help in the collection and dissemination of statistics, not only on crude and refined oil production, consumption and stocks, but also on the water, pipe line and tank car movement of both crude oil and refined products.

The Government, the American Petroleum Institute and others have made great strides in collecting reliable production, stocks and consumption statistics, and the Institute has made a start toward getting figures bearing on the movement of oil. The Oil and Gas Journal has established an eastern pipe line report of great value to the industry. Such efforts should be enlarged to such an extent that the entire oil movement could be watched closely by the operators. Doubtless certain companies compile figures for their own use which are of great benefit to them in their operations, but the general publication of such statistics would turn out to be of as much benefit to them as to those who do not now have them.

Definite Government Policy.

The formulation of a definite governmental or national policy regarding the oil business, one which would protect both the public and the industry, is a recognized need. While Great Britain and other foreign governments have established wise governmental policies, their problem is much simpler than ours, and the circumstances do not bear direct comparison. The keynote of our policy should be governmental encouragement without interference, and a recognition of the value of the oil industry to the nation in time of peace and war.

If the American Government would establish a wise and permanent policy helpful to the oil industry, in this country and in its operations in foreign fields, there would be much less uncertainty on the part of the politicians, the industry and the public with regard to it.

SOUTH AMERICAN MARKETS

It is estimated that at least 85 per cent of the total quantity of petroleum products imported into South American countries goes to the three republics of Argentina, Brazil and Chile. Of the total petroleum imports into South America, approximately 25 per cent in quantity is shipped from the United States, with the balance coming chiefly from Mexico. Some oil is also shipped from Peru to the neighboring countries, and the domestic demand is supplemented by local production in varying proportions in Argentina, Peru, Ecuador, Venezuela, and Colombia. As most of the oil imported from Mexico consists of crude and fuel oils, it is apparent that the bulk of the refined oil imports is supplied by the United States.

NEW REFINERIES IN POLAND

Three new gasoline refineries have recently begun operations in the Boryslaw district, namely: the refinery of the Galicia Petroleum Co. at Braznica; of the Silva Plana at Braznica, and of the same company at Boryslaw. The "Baku" well drilled by the "Iriag" Co. gave the first production of 15 tons a day at a depth of 1,200 meters. This well is located near "Horodyszeze" Mountain, the most productive part of the Boryslaw district, Assistant Trade Commissioner Elbert H. Baldwin, Warsaw, reports to the Department of Commerce.

GAS FOR SHAMROCK, TEXAS

OKLAHOMA CITY, Okla., Oct. 8.—The Town Council at Shamrock, Texas, has awarded a natural gas franchise to Roy W. Schenck, who made a gas discovery a few weeks ago about 4 miles north of that place. The rate agreed upon is 75 cents per 1,000 feet and it is to be reduced to 60 cents when 400 consumer connections are made. It is reported that several gas pipe line surveys have been made and estimates are being prepared as the basis of piping gas from the Panhandle Fields to probably a score of towns in that section and in border counties in Oklahoma.

A few of the many Moore Derricks erected by the Gulf Production Co. at Caddo Lake, La.

Inevitably the "Big 'Uns" Adopt Moore Derrick

Little time is lost in adopting the Moore tubular derrick by the big companies which have once thoroughly tried, tested and compared derricks of wood and steel. Logically they proceed to buy the Moore tubular derrick on the basis of lowest ultimate cost.

Its great strength and light weight; its long life; its simplicity and ease of erection; its safety against fire and wind hazard—these are a few of the considerations which every day make big operators adopt the Moore derrick.

At Caddo Lake, La., a few years back there was hardly a Moore derrick to be seen. A year ago there were a few, and today there are a great many. Eventually you may scan the lake in vain for a wood derrick, remembering that not long ago there was no other kind.

The choice of a steel derrick is easy—the Moore derrick is invariably the choice of the large majority of operators using steel derricks. The Moore derrick, years ago, passed the experimental stage, and the evidence of over 20,000 Moore derricks in successful use should mean more to you than all the reasons we could give you for its superiority.

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East Central Texas

By Staff Correspondent.

Powell production jumped to 180,000 bbls. at the close of the past week and averaged 170,115 bbls. for the week, an increase of 7,770 bbls. a day. Twenty-three completions show a total initial production of 52,900 bbls. a day. Southwest extension well starts at 5,600 bbls. a day.

CORSICANA, Tex., Oct. 8.—The production curve of the Powell Field took an upward turn last week and closed Saturday with an estimated output of 180,000 bbls. The production had gone down to 162,225 bbls. in the early part of the week, but a host of completions, some of which were big ones, caused a production spurt which boosted the daily output nearly 18,000 bbls. and gave the field a week's average of 170,000 bbls.

One of the biggest producers of the week was an extension well completed by Brooks and others on the Cerf farm, Smith survey, in the southwestern side of the district, which started off at 5,600 bbls. a day.

The Humble Oil Co. which recently completed a big well on the Cerf farm, same survey, finished No. 2 Cerf and it is good for 7,200 bbls. initial production.

The Week's Completions

Two dozen wells were finished in the week in review with a total initial production of 52,900 bbls. The list follows:

Tidal Oil Co.'s No. 2 Harris, Phillips-Harris survey, sand at 2,939-60 feet, 7,000 bbls.

Brooks and others' No. 1 Cerf, Smith survey, sand at 2,912-58 feet, 5,600 bbls.

Humphreys Oil Co.'s No. 43 McKie, sand at 2,810-67 feet, 800 bbls.

Humphreys Oil Co.'s No. 44 McKie, Buffington survey, sand at 2,808-2,938 feet, 1,600 bbls.

Bass and others' No. 2 Irvine-Gentry, Taylor survey, sand at 2,890-2,930 feet, 200 bbls.

Gulf Production Co.'s No. 5 Murchison, Barry survey, sand at 2,972-76 feet, 1,900 bbls.

Humble Oil & Refining Co.'s No. 4-A Ramsey, sand at 2,918-59 feet, 1,800 bbls.

Humble Oil & Refining Co.'s No. 2-B Ramsey, Smith survey, sand at 2,911-47 feet, 2,400 bbls.

Gulf Production Co.'s No. 2 Smith, Taylor survey, sand at 2,918-44 feet, 450 bbls.

Skelly Oil Co.'s No. 2 Ramsey, Smith survey, sand at 2,927-60 feet, 200 bbls.

Tidal Oil Co.'s No. 2 Thompson, Rahm survey, sand at 2,963-91 feet, 1,400 bbls.

The Roxana Petroleum Co.'s No. 8 McKie, Buffington survey, sand at 2,896-2,916 feet, 150 bbls.

Humble Oil & Refining Co.'s No. 2 Cerf, Smith survey, sand at 2,926-76 feet, 7,200 bbls.

Humphreys Oil Co.'s No. 8 Kent, Smith survey, sand at 2,938-77 feet, 500 bbls. of which 2 per cent is water.

Humble Oil & Refining Co.'s No. 4 Humphreys, Smith survey, sand at 2,933-73 feet, 2,400 bbls.,

Humble Oil & Refining Co.'s No. 1 Cerf, Smith survey, sand at 2,920-71 feet, 2,000 bbls.

Humble Oil & Refining Co.'s No. 2 Davis, D. Barry survey, sand at 2,933-81 feet, 3,200 bbls.

Humphey's Oil Co.'s No. 42 McKie, Broyles survey, sand at 2,908-62 feet, 1,400 bbls.

Humble Oil & Refining Co.'s No. 6-B E. Ramsey, Smith survey, sand at 1,890-2,956 feet, 4,800 bbls.

Humble Oil & Refining Co.'s No. 10 Kent, Smith survey, sand at 2,880-2,929 feet, 2,400 bbls.

Roxana Petroleum Co.'s No. 4 McKie, Buffington survey, sand at 2,862-2,932 feet, 2,000 bbls.

The Texas Co.'s No. 11 Kent, Smith survey, sand at 2,882-2,920 feet, 2,800 bbls.

Humble Oil & Refining Co.'s No. 8 McKie, Buffington survey, sand at 2,890-2,927 feet, 700 bbls.

New Work in Field

There were 59 derricks up, some of them rigged up and 123 wells drilling on the sand, a total of 182 operations in the Powell Field at the close of the past week's review of developments in the field. The total number of wells completed since the coming in of the Hughes Development Co.'s gusher on the McKie farm last May, up to the close of the last review above, has been 332 of which 32 were dry an dabandoned as not worth finishing.

Operators in the Powell Field lost no time in commencing drilling operations after building derricks, and of the following list of new derricks some have already been converted into drilling wells and others are being rigged up.

Witherspoon and others' No. 9 Burke, Anderson survey; The Texas Co.'s Nos. 16 and 16 I. T. Kent, Smith survey; Humble Oil & Refining Co.'s No. 10-B McKie, Buffington survey, all in the older part of the field. In the newer development, the Humble Oil & Refining Co.'s No. 13 Humphreys, Barry survey is a derrick and likewise the same company's Nos. 3, 4, 6, 7, and 8, G. Kent, Harris survey; No. 5 G. Kent, Greer survey; The Texas Co.'s Nos. 4, 5, 6, 7, 8, 9, 10, 11, and 12 Fleming, Harris survey; Humble Oil & Refining Co.'s No. 11-B Ramsey, Smith survey; The Texas Co.'s No. 14 Kent, Smith survey; Collins & Wheelock's No. 1 G. Kent, Harris survey; Empire Gas & Fuel Co.'s No. 1 Sweetman, Harris survey; Gulf Production Co.'s Nos. 3 and 4 Barron, Harris survey; Nos. 1, 2, and 3, Mrs. Crews, Harris survey; Humble Oil & Refining Co.'s Nos. 1, 2, 3, 4, and 5 Mrs. Crews, Harris survey; Simms Oil Co.'s No. 1 Boyd, Meader survey; Tidal Oil Co.'s Nos. 2, 3, 4, 5, 6, Mrs. Crews, Harris survey; and the same company's Nos. 5, 6, 7, 8, 9, 10, 11, Phillips, Harris survey; Webster and others' No. 1 Boyd, Bragg survey.

The Humphreys Oil Co. has 16 wells drilling on the McKie farms, on the Buffington and Broyles surveys. It is all one property, in fact. The completion of these wells, all of which will have been finished shortly, will give the company 55 wells on the McKie tract with plenty of room for more if the west side of the property does not test out satisfactorily. The company will not be in a hurry to drill its third line of wells as it has no offsets to hurry its movements and it will continue to drill in with cable tools, which it started to do a short time ago. This means a better hole and the best possible results from the wells.

Pennsylvania-West Virginia

By D. S. WAKENIGHT

PITTSBURGH, Pa., Oct. 8.—During the past week operators and producers in the Eastern Fields were inclined to take a more hopeful view of the oil situation. The improvement was not great but in the right direction. When the credit balance market gets back to nearly twice the present quotation, eastern operators will again begin active development work. In many sections in the East there is a large amount of territory that can be drilled with the assurance of getting light producers. The possibility of discovering new pools is very remote.

Good Producer in Fairfield County

The deep sand territory in southeastern Ohio is completing quite a good many wells and for the most part light pumpers. One of the best completions in this territory during the week is the Montana Oil & Gas Co.'s No. 3 on the Levi Kennedy farm, located in Section 10, Rush Creek Township, Fairfield County. The well produced 50 bbls. the first 24 hours after drilled through the Clinton sand and shot. In Clarke Township, Coshocton County, the Pure Oil Co.'s test on the J. W. Patterson farm is proving a better producer than first indicated when drilled through the sand. During the early part of the week it was given a shot and has been averaging 20 bbls. a day. In Section 16, Ward Township, Hocking County, the Sunday Creek Coal Co.'s No. 110 on its own property has been completed and shot in the Clinton sand and good for 22 bbls. a day. In the southwest quarter of Section 21, Washington Township, the Gordon Oil Co. has completed and shot in the Clinton sand No. 4 on the Henry N. Ford farm, good for 15 bbls. a day.

Gasser in Licking County

In Lot 7, Madison Township, Licking County, the Ohio Fuel Supply Co. has drilled a test on the W. J. Mossman farm into the Big Lime formation. It is a 2,000,000-foot gasser. In Section 3, Green Township, Monroe County, N. T. Staudt & Co. have a very light pumper in the Keener sand at a second test on the John Starr farm. In Section 24, Washington Township, Turner & Co. completed a test on the Benjamin Piatt farm, a small gasser. In Section 30, Bethel Township, the Simmons Oil Co. has a very light pumper at No. 3 on the V. Shumacher farm. In Independence Township, Washington County, F. H. Leidecker & Co. completed a second test on the Edward Matheny farm, a 5-bbl. pumper in the Keener sand. In Newport Township, the Pleasants County Bank got a very light pumper in the Keener sand at a test on the Carrie Keselring farm. In Section 10, Rush Creek Township, Fairfield County, the Carter Oil Co. started to drill a second test on the Charles Brandt farm. In gas territory in Section 7, Muskingum County, the Trinway Oil & Gas Co. has the rig completed for a test on the Lloyd Fawcett farm.

The Carter Oil Co. completed and shot in the Clinton sand No. 3 on the S. B. Holmes farm, in Section 22, Hopewell Township, Licking County, not good for more than 4 or 5 bbls. a day. In Section 25, Lawrence Township, Washington County, James Baldwin & Co. started to drill deeper a test on the J. D. Templeton farm. The well is a duster in the Keener sand. In Section 19, Grandview Township, Holdren, Tuel & Co. developed a little oil and gas in the Big Injun sand at No. 3 on the Althea Fauble farm. In the same township, Section 22, the Drake Oil Co.'s second test on the J. A. Hoffman farm is a gasser in the Big Injun sand. On Butler district, Hancock County, G. W. Freshwater's second test on the J. M. Scott farm is a very light pumper in the Berea grit. In Lafayette district, Pleasants County, the Creek Oil Co. has completed a Big Injun sand duster at a test on the Jacob Martin farm.

Shallow Sand Duster

In the Berea grit pool in Section 26, Ward Township, Hocking County, C. H. Bell & Co.'s second test on the National Fire Proofing Co.'s property is a duster in the Berea grit. This location is 600 feet south of the first test. In the same township, in Section 25, Sharren & Son completed in the same formation a test on the Bud Smith lot, in the southeast of the village of Carbon Hill. It is also a duster in the Berea grit. One mile north of production in Jackson Township, Knox County the Ohio Fuel Supply Co. started to drill to the Clinton sand a test on the Oliver Giffen farm. In Section 8, Knox Township, Columbiana County, the Duncan Oil Co. started to drill a test on the John Gobely farm. For almost a year no wells have been drilled in this section. In Section 10, Rush Creek Township, Fairfield County, the Carter Oil Co. drilled a test on the M. Young farm through the Clinton sand, showing for a 25-bbl. producer. In Section 20, Madison Township, Perry County, the Atha Oil Co. has started to drill down to the Clinton sand No. 5 on the Melick Bros. farm. In Washington Township, Monroe County, Harry Binegar & Co. are drilling a test on the Elmer Briggs farm. In Ludlow Township, Thornily & Poole are drilling a test on the Thomas Parrington farm.

West Virginia Has Light Pumper

The West Virginia fields had nothing better than light pumpers during the week. On Little Grave Creek, Union district, Marshall County, the Decem Development Co. drilled a second test on the Thomas Markey farm through the Big Injun sand, good for 15 bbls. a day. In New Milton district, Doddridge County, G. B. Travis got a 5-bbl. pumper in the Big Injun sand at a test on the A. Draner farm. On the head waters of Indian Creek, McElroy district, Tyler County, the Alva Oil & Gas Co.'s second test on the W. R. McIntyre farm is a gasser in the Gordon sand at 3,100 feet. The Owens Bottle and Machine Co. has a rig up for a test on the J. A. Freeland farm in Paw Paw district, Marion County. On Flat Run, Mannington district, the Marshall Oil Co.'s test on the J. D. Wolf farm is a small gas well in the Gantz sand. Lynch & Co. have a very light pumper in the Squaw sand at a second test on the Storres farm in Grant district, Ritchie County. In DeKalb district, Gilmer County, the Hope Construction & Refining Co. has a fair gasser in the Big Injun sand at No. 3 on the W. C. Gum farm. In the same district, the Pittsburgh & West Virginia Gas Co. has rigs up on the David Linger and Jonb Crites heirs' farms. On Gillespie Run, Murphy district, Ritchie County, Mellon Bros. are starting a second test on the A. J. Null farm. The Burke Oil & Gas Co. has a rig up on the J. B. Burke farm.

In Butler district, Hancock County,

(Continued on Page 124)

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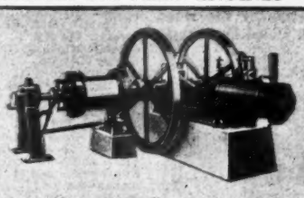

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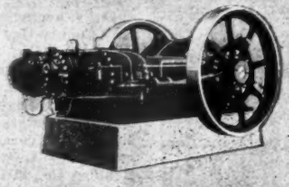

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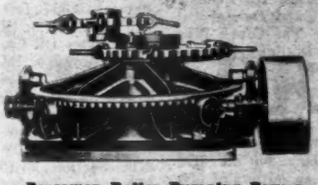

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Oklahoma Field Operations

By Ralph T. Baker

Slight spurt in production in new Wewoka Field, deeper drilling, and indications of oil in a few wildcats feature of week in Oklahoma. Continued drop in operations in Tonkawa and Osage but increase in Ardmore and Bristow districts. Other districts about same as last week.

TULSA, Okla., Oct. 9.—Aside from a slight spurt in production in the new Wewoka Field, due to deeper drilling in wells already classed as producers, and indications of oil in a few wildcat wells, Oklahoma remained quiet during the past week. New work continued to slump, the summary for September 29 showing 64 locations, 213 rigs, 521 wells drilling and 550 shut down, a total of 1,348 operations. On September 22 there were 62 locations, 218 rigs, 518 wells drilling and 562 shut down, a total of 1,360 operations.

A continued drop in operations at Tonkawa and in Osage County districts was largely responsible for the decrease reported. At Tonkawa new work slumped from 156 to 145 operations and in Osage County there was a drop from 249 to 238 operations. The Ardmore area showed an increase of 11 operations going from a total of 205 to 216 operations, while Bristow jumped from 100 to 106 operations. Other districts showed new work on the same scale as previous week.

Wewoka Holds Attention

Wewoka again held the attention of operators with its remarkable performance. Deeper drilling in three wells resulted in a production of approximately 19,000 bbls., for one day from 10 wells. Of this amount the Producers & Refiners Corp. contributed 5,700 bbls. from its No. 1 Foster, 1,650 bbls. from No. 2 Foster, and 2,000 bbls. from No. 3 Foster, a total of 9,350 bbls. R. H. Smith's property, now operated as the Oklahoma Company, showed 3,850 bbls. from No. 1 Foster in Section 33; 2,219 bbls. from No. 1 Long, 2,292 bbls. from No. 1 Foster in Section 32, and 248 bbls. heavier oil from No. 1 Parker, making a total of 8,609 bbls. from the four wells. The Independent Oil & Gas Co. and the Sapulpa Refining Co.'s No. 1 Long made 280 bbls. and the Independent Oil & Gas Co. and the Atlantic Oil Producing Co.'s No. 1 made approximately 375 bbls., while the Magnolia Petroleum Co. and W. R. Ramsey's No. 1 Parker produced 317 bbls. Total production for the day was 18,931 bbls.

Deeper drilling in the Producers & Refiners Corp.'s No. 1 Foster and the Oklahoma Company's No. 1 Foster, NW cor. SW NW, Section 33-8-8, and the same company's No. 1 Goat, SE cor. NE NE, Section 32-8-8, was responsible for most of the increase. The Producers & Refiners Corp.'s No. 1 Foster subsided to an output of 2,900 bbls. on the day following its output of 5,700 bbls. Production at the end of the week was again near the 15,000-bbl. mark set the week before.

"South Country" Activity

The "south country" area continued to attract attention with the Transcontinental Oil Co.'s No. 2 Harjo, SW cor. NW, Section 23-13-7, Okfuskee County, which was making one and one-half bailers of oil an hour from sand topped at 3,715 feet. It had 400 feet of open hole and was shut down to run 5-inch casing.

In Hughes County the Gilcrease Oil Co.'s No. 1 Bruner, NW cor. NE, Section 20-9-9, was flowing by heads from sand topped at 3,050 feet. The Papoose Oil Co.'s No. 1 Simons, SE cor. SW, Section 4-9-9, which made 300 bbls. of oil in one day, was still shut down, with 30 feet of cavings in the hole. Sand in the Papoose well was found at 3,315-16½ feet.

Jarvis & Holm's No. 1 Harjo, NE cor. SE, Section 21-10-8, Seminole County, was drilling ahead below a lime break at 3,489-91 feet with little to encourage further prospecting. Lewis & Clark's No. 1 Long, SW cor. NE SW, Section 33-8-8, drilled through a good show in sand at 2,100-08 feet. The Magnolia Petroleum Co. shut in No. 1 Parker, NW cor. SE NW, Section 33-8-8, as an 18,000,000-foot gas well, producing from sand topped at 3,022 feet. The Independent Oil & Gas Co.'s No. 1 Walker, SE cor. Section 29-8-8, was shut down on top of sand at 3,110 feet to erect tankage before drilling into pay sand.

The Magnolia Petroleum Co. is reported surveying a right of way for a 6-inch line from its north and south main line to the Wewoka Field.

Deeper Drilling Forecasted

A forecast of deeper drilling in all the shallower districts of eastern and northeastern Oklahoma was given credence during the week with the completion by H. D. Glidden and Munn Bros., Inc., of No. 3 Mackey, NW cor. SW SE, Section 28-20-12, Osage County, which started off with a flow of 300 bbls. in 12 hours. Oil was 39 gravity. Production came from the second break in the Mississippi limestone, with pay sand from 2,015-30 feet. The same operators' No. 2, same lease, hit a 30,000,000-foot flow of gas at 1,955 feet about a year ago. It was mudded off and when drilled deeper had an initial production of 200 bbls. Two old wells on the lease are now making about 100 bbls. Further exploitation of the second break or Wilcox sand in this section and other districts can be expected with an improvement in marketing conditions.

Peters & Oliphant's No. 1 NW cor. SW, Section 12-27-6, extending the Burbank Field, was swabbing about 30 bbls. at a total depth of 2,984 feet. The Skelly Oil Co. abandoned No. 1, NE cor. SW, Section 23-27-5, an old well, and the Phillips Petroleum Co. & Skelly Oil Co. also abandoned No. 5, NW cor. SW SE, Section 23-27-5. Burbank storage was growing, showing 5,595,880 bbls. now in steel tanks and 2,138,414 bbls. room in the field.

At Tonkawa an increase of 814 bbls. daily average production registered during the week was largely due to completion of several wells in Tonkawa sand, some of which started off with an initial output of 300 to 800 bbls. Fourteen wells were finished during the week, many of which were reported from the Comar Oil Co.'s Beverlin lease. With a decrease of 1 well and 3,504 bbls. daily average production, the Burbank Field continued to demonstrate the effectiveness of the shutdown movement. The U. S. Cities Corp.'s No. 1 Simmons, NE cor. SE, Section 27-25-2w, Kay County, reported a show of oil from sand at 2,106-10 feet.

In Creek County the Eastern Oil Co.'s No. 1 Fish, NW cor. Section 16-15-8, was dry at 3,810 feet. The Pure Oil Co.'s No. 7 Yarhola, NE cor. Section 17-15-8, was good for 471 bbls. after shooting Wilcox sand with 100 quarts.

Burbank Production

Daily average production of the Burbank Field for the week ended October 3 was as follows:

Company	No. Wells	Output Bbls.
Carter Oil Co.	164	19,257
Comar Oil Co.	7	340
Cosden O. & G. Co.	68	2,080
Devonian Oil Co.	16	333
Gardner Pet. Co.	20	1,146
Gypsy Oil Co.	165	16,760
Kewanee O. & G. Co.	12	262
Laurel O. & G. Co.	16	573
Lorraine Pet. Co.	14	388
Midland Oil Co.	5	151
Mid-Kas. O. & G. (W. Phillips)	20	4,843
Phillips-Delmar Cos.	1	2,056
Phillips Pet.	12	2,233
Phillips-Skelly Cos.	141	9,291
Prairie O. & G. Co.	90	2,552
Producers & Refiners Corp.	28	1,043
Roxana Pet. Corp.	57	1,058
Simons-Moore	29	631
Sinclair O. & G. Co.	130	6,943
Skelly Oil Co.	4	2,105
Tidal Osage Oil Co.	41	1,239
Twin State Oil Co.	7	269
Total	1,047	66,553
Kay County		
George S. Boles	1	864
Carter Oil Co.	3	3,720
Comar Oil Co.	6	4,062
Cosden O. & G. Co.	2	2,321
Gypsy Oil Co.	4	1,054
Laurel O. & G. Co.	1	20
Phillips Pet. Co.	5	4,907
Mid-Kas. O. & G. (W. Phillips)	4	3,794
Pure Oil Co.	2	715
Roxana Pet. Corp.	1	850
Sapulpa Ref. Corp.	5	1,332
Skelly-Phillips Cos.	13	2,672
Sinclair O. & G. Co.	1	179
Twin State Oil Co.	5	2,769
Total Extension	52	29,359
Total Burbank	1,099	95,912
Last Week	1,100	99,416
Difference	1	3,504

Runs from the field amounted to 50,400 bbls. during the week as follows: Gulf Pipe Line Co. 4,330 bbls.; Cosden Pipe Line Co. 6,820 bbls.; Kay County Gas Co., 4,320 bbls.; Osage Pipe Line Co., 1,735 bbls.; Oklahoma Pipe Line Co., 14,677 bbls.; Prairie Pipe Line Co., 7,785 bbls.; Sinclair Pipe Line Co., 4,920 bbls.; Moore Refining Co., 2,008 bbls.; Empire Pipe Line Co., 1,740 bbls.; and Magnolia Pet. Corp., 2,065 bbls. Storage was as follows: Standish Pipe Line Co., 11,251 bbls.; Gypsy Oil Co., storage 14,407 bbls.; Mid-Kansas O. & G. (Waite Phillips) storage 7,369 bbls.; Sinclair O. & G. Co., storage 3,366 bbls.; Sapulpa Refining Co., storage 932 bbls.; Twin State Oil Co., storage 1,294 bbls.; Boles storage 714 bbls.; and Delmar Oil Co., storage 2,056 bbls. The Ozark Pipe Line Co. ran 4,437 bbls. daily average to the Tonkawa terminus.

The most important event in the Carter County area was the completion of the Coline Oil Co.'s No. 36 Jones, NE cor. SW, Section 4-4s-3w, which started off at the rate of 308 bbls. for the first 12 hours and settled to an output of 500 bbls. the first day from second sand at 2,544-47 feet. It had been making 75 bbls. at 2,495-2,525 feet.

Pipe Line Extension

A $3,000,000 pipe line from its DeQueen, Ark. station to the Hewitt and Healdton areas will be started November 1, by the Oklahoma Pipe Line Co., according to a recent announcement. The line will be 8-inch and 10-inch and will be about 160 miles in length. It will handle about 20,000 bbls. daily, when working at capacity. The same company's addition to the Drumright-DeQueen line will soon be in working order, enabling it to handle a total of 70,000 bbls. daily from the Cushing district to DeQueen, where oil is put in motion toward the terminus of the Standard Pipe Line Co. at Baton Rouge, La.

A gradual increase in runs by the Prairie Pipe Line Co. in the older areas of Oklahoma and announcement by the Empire Pipe Line Co. that it had lifted its proration order in the Healdton Field were taken as indications of a growth of optimism on the part of purchasers in the Mid-Continent. Continued curtailment is expected to be the order of the day for some time to come, however.

Tonkawa Production

Daily average output of the Tonkawa Field for the week ended October 3, was as follows:

Company	No. Wells	Output Bbls.
Amerada Pet. Corp.	35	3,641
Blackwell O. & G. Co.	28	3,140
Carter Oil Co.	6	408
Champlin Ref. Co.	3	122
Comar Oil Co.	239	22,751
Cosden-Marland Cos.	12	651
Gypsy Oil Co.	76	9,659
Healdton O. & G. Co.	13	1,635
McCaskey & Wentz	40	4,667
McMan O. & G. Co.	2	43
Pennok Oil Co.	25	2,552
Phillips Pet. Co.	4	337
Prairie O. & G. Co.	9	1,196
Sinclair O. & G. Co.	1	12
Slick & Comar Oil Co.	31	4,082
Southwestern Pet. Co.	14	1,949
Texas Co.	4	146
White Eagle O. & G. Co.	6	561
Total	548	56,561
Last Week	534	55,649
Difference	14	912

Daily average runs were as follows: Kay County Gas Co., 35,661 bbls.; Ozark Pipe Line Co., 9,675 bbls.; Gulf Pipe Line Co., 4,491 bbls.; Empire Pipe Line Co., 1,073 bbls.; Champlin Refining Co., 2,180 bbls.; Prairie Pipe Line Co., 1,196 bbls.; Producers & Refiners Corp., 430 bbls.; The Texas Co., 146 bbls.; Oklahoma Pipe Line Co., 468 bbls.; Bolene Refining Co., 898 bbls.; and Golden Rule Refining Co., 326 bbls. The Texas Co. has turned over its connections to the Kay County Gas Co. and has shut down its station in the Tonkawa Field.

Creek County

West of Depew, in Creek County, the Carter Oil Co. and others' No. 1 Kayl, SE cor. Section 6-15-8, was dry at 3,864 feet. Brann & Kline and the Shaffer Oil & Refining Co.'s No. 3 Warnakee, NW cor. SW SW, Section 15-15-8, was drilling at 975 feet. The Prairie Oil & Gas Co.'s No. 1, NW cor. SE, Section 17-15-8, was good for 190 bbls. the first 24 hours after shooting sand from 3,747-72 feet with 10 quarts. The Bu-Vi-Bar Oil Co.'s No. 1-A Peters, SW cor. SE NE, Section 23-15-8, was drilling at 600 feet. The Prairie Oil & Gas Co. was rigging up for No. 1 Bearhead, NW cor. NE, Section 14-14-8. The Texas Co.'s No. 5 Jacobs, SE cor. NE, Section 27-14-8, was drilling ahead at 840 feet after setting 10-inch casing at 835 feet. The Prairie Oil & Gas Co. had a rig on the ground for No. 4 Kernall, NW cor. NE SE, Section 30-14-8.

The Waite Phillips Co.'s No. 1 Grayson, SE cor. NE, Section 23-17-8, was dry at 3,597 feet. W. L. Clark was spudding No. 3, SE cor. Section 36-17-8. The Carter Oil Co. failed to make a paying well of No. 1 Grayson, SW cor. NW SE, Section 22-16-8, which was abandoned as dry at 3,154 feet after getting oil sand from 3,143-49 feet and water from 3,149-54 feet. The Lorraine Petroleum Co.'s No. 10 Deere, NE cor. SW NE, Section 23-16-8, was good for 15 bbls. after shooting sand at 3,142-47 feet with 5 and 10 quarts.

Offsetting the recent strike of the Union Petroleum & Supply Co. in 2-14-6, Lincoln County, the Roxana Petroleum Corp. was spudding No. 1 Zoller, SW cor. Section 1-14-6, and J. A. Hull was spudding No. 1 Benevolent Association, NW cor. Section 12-14-6.

The Sand Spring Home's No. 74, C SW, Section 36-22-8, Osage County,

(Continued on page 126)

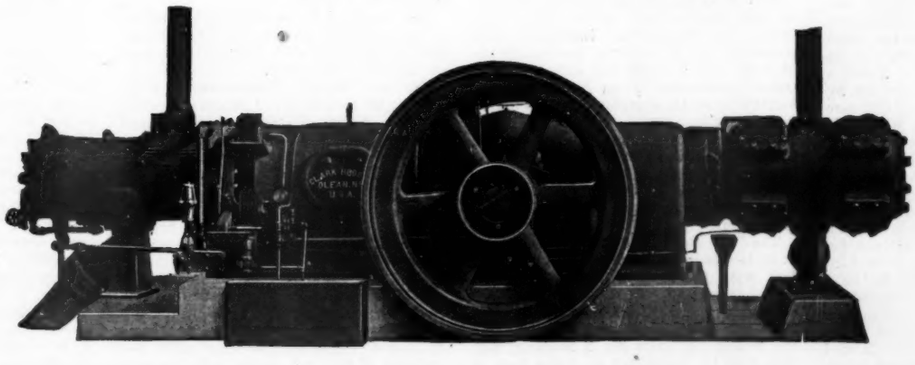
CLARK

DIRECT DRIVEN GAS COMPRESSORS

Clark Bros. Co. OLEAN N. Y.

And they asked me how I did it,
And I gave 'em the Scripture text,
"You keep your light so shining
A little in front o' the next!"
They copied all they could follow,
But they couldn't copy my mind,
And I left 'em sweating and stealing
A year and a half behind.

—*Kipling*



The original can be seen at the Tulsa International Petroleum Exposition and Congress, booths D-9, 10, 11 & 12.

CLARK BROTHERS COMPANY

OLEAN, N. Y.

Manufacturers of Gas Compressors and Drilling Engines

SALES AGENTS:

GAS ENGINEERING & CONSTRUCTION CO.

405 Kennedy Bldg. TULSA, OKLAHOMA

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208 Consolidated Royalty Bldg. CASPER, WYOMING

sand topped at 3,050 feet. The Papoose No. 1 Fish, NW cor. Section 16-15-8, be about 160 miles in length. It will (Continued on page 120)

North Louisiana-Arkansas

By M. L. Vaughn

Livingston and associates' No. 3 Johnette, Union County, makes 300 bbls. and Oil Operators Trust's No. 1 Lawton, 400 bbls. W. W. Brown gets 200-bbl. producer in Ouachita County area. New test in La Salle Parish and interesting wildcats in Caddo and Union Parishes, Louisiana.

SHREVEPORT, La., Oct. 8.—A shrinkage of slightly more than 9,000 bbls. in the joint production of north Louisiana and south Arkansas is shown by the pipe line runs for the last week. The heaviest loss was in heavy Smackover crude which diminished by 10,000 bbls. from runs of the previous week. Gains of 2,445 bbls. principally in light Smackover, and in Caddo, De Soto, Red River and Elm Grove, were offset by losses in all other areas aggregating 11,535 bbls. Following is the distribution for both States:

North Louisiana	
Caddo, light	8,590
Caddo, heavy	2,490
De Soto-Red River	5,825
Elm Grove	1,300
Haynesville	24,595
Homer	9,730
Bellevue	5,645
Total	58,175
South Arkansas	
El Dorado	11,490
Calion	7,555
Smackover, light	15,115
Smackover, heavy	85,430
Stephens	3,210
Total	122,800
Total both areas	180,975
Total last week	190,065
Decrease	9,090

New Test in La Salle

Possibilities in La Salle Parish for an additional test in that area which has secured some publicity through the operation of the Urania Petroleum Co. in Section 20-10-2e, which had a showing of oil in its first test, are increased by the reported development of a 2,000-acre tract leased by W. H. Mills for J. A. Deas & Co. who are reported to have made a contract to begin drilling within 30 days near Olla, and in the vicinity of the Urania operations.

Drilling is reported to be in prospect before December 1 on a 5,000-acre block in Smith County, about equidistant between Dallas and Shreveport, near Lindale, Texas. Location is said to have been decided upon and geological indications suggest the possibility of production at depths where it is found in the Mexia and Powell areas. The acreage is claimed to present unusually advantageous possibilities on account of its location at the junction of two fault lines and is said to have already attracted scouting and geological activity on the part of representatives of the major companies. The promotion has been pushed by Albert Feldman, of New York City; W. F. Weeks, of Kansas City; and John M. Jones, president of the Farmers and Merchants National Bank, of Knoxville, Tenn., all of whom have had ample wildcat experience in various Texas fields.

Caddo and Union Wildcats

Two operations in Union Parish and one in Caddo of purely a wildcat character have reached a stage where they are being watched with considerable interest.

It is reported that the Brewer & Sewell well in Section 15-18-16, Caddo Parish, has been recovered by means of sidetracking and that the contractors believe it impossible to complete the well. Everyone connected with the operation is reticent, but it is believed drilling has proceeded beyond the depth at which the fishing job was encountered, in which event it would require only a short time to reach a depth of interest on account of the log checking about 100 feet higher than other operations wherein the nearest production has been found. This would suggest about 2,100 feet as the probable oil producing level in this operation and indicates an interesting stage of the work.

The wells in Union Parish are also being watched closely by scouts and others and are both at the point of being drilled in. Both are near the Clark or O'Brien well, reported as a commercial possibility in Section 17-23-1e. One of these is Love Bros.' No. 1 Security Trust, Section 12-23-1w, in which 6-inch was set at 1,990 feet and is now about to be tested; and the other an offset to the original Clark No. 1 in Section 17-23-1e, which had reached a depth of 2,150 feet at the latest report. Both wells are within 2 or 3 miles of the Arkansas line near Oakland and about 14 miles north of Farmersville, the parish seat.

Union County Completions

Completions in the Union County area of the Smackover district totaled only a little more than a thousand barrels of production with six successful wells and one failure. There is the low record for this area since production was established there late in 1922.

Two wells are to be credited with by far the greater bulk of the total production for the week: Livingston and associates' No. 3 Johnette, Section 33-15-16, completed at 1,980 feet with 300 bbls. and Oil Operators' Trust No. 1 Lawton, Section 10-16-15, completed at 2,000 feet with 400 bbls.

Crawford & Sebastian abandoned No. 1 Harris, Section 16-16-16, at 2,393 feet, leaving casing in the hole.

The Detroit-Summerfield Oil Co. completed No. 5 Moody, Section 17-17-14, at 2,145 feet with 175 bbls.

The Gulf Refining Co. completed No. 3 T. C. Goodwin, Section 16-16-15, at 2,080 feet, with 125 barrels.

The Standard Oil Co. of Louisiana completed No. 9 McClanahan, Section 6-16-16, at 1,990 feet, with 30 bbls. and the Wilcox Oil Co.'s No. 2 Murphy, Section 7-16-15, completed at 2,090 feet, is making 30 bbls. of oil with 2,000,000 feet of gas.

With the exception of the Oil Operators Trust's No. 1 Lawton, which is swabbing, all other producers are pumpers.

Drilling Operations

Only three new operations are added to the report for the week in Union County, while seven locations were abandoned, upon only one of which derrick had been erected. Six were abandoned by the Gladys Belle Oil Co. in Sections 16-16-15 and 15-16-15 and the Phillips Petroleum Co. abandoned location for No. 3 A. W. Giller in Section 10-16-15.

The Amerada Petroleum Corp. bailed casing dry at 1,865 feet in No. 4 Lyell, Section 3-16-15, and is arranging to drill in at 1,870 feet.

The Arkansas Pipe Line Co. is drilling at 1,775 feet in No. 3 Harrell, Section 17-16-15. Barnsdale & Foster set surface 12½-inch in No. 1 J. Murphy and drilled to 1,250 feet and have derrick up for No. 2 J. Murphy, in Section 17-16-15. Bondurant and others are rigging up to drill No. 1 Tuberville, Section 9-18-12. Crawford & Sebastian are drilling at 1,320 feet in No. 6 Giller, Section 14-16-15. The Crosby Trust set 6-inch at 1,965 feet in No. 2 Murphy, Section 15-16-15.

Dickson and others tested salt water at 2,070 feet in No. 1 Burton, Section 25-16-16 and plugged back to 2,060 feet where they tested dry. The Dunn Oil Co. set 10-inch at 60 feet in No. 1 McKinney, Section 18-16-15.

The Federal Petroleum Co. set 10-inch at 150 feet in No. 2 Hicks, Section 20-16-15. In Section 28-17-12 is drilling at 2,380 feet in No. 2 Union Saw Mill.

Hall & Gann are rigging up to drill No. 2 Graves, Section 3-16-15. The Higgins Oil & Refining Co. set surface 15½-inch and drilled to 350 feet in No. A-2 Murphy, Section 14-16-15, and set 15½-inch at 40 feet in No. 1 Jameson, Section 21-18-15. Y. E. Hildreth will deepen No. 1 Smith, Section 2-16-17, completed as a failure at 2,610 feet, in March, 1923, and abandoned after casing was pulled. The Humble Oil & Refining Co. is swabbing to test at 1,990 feet in No. 1 B. Goodwin, Section 3-16-15, with 1,500 feet of oil in the hole. In the same section is rigging up to drill No. 2 B. Goodwin. In Section 7-16-15, is drilling at 1,500 feet in No. 2 J. E. Lawton. In Section 32-15-16, set 6⅝-inch at 1,870 feet in No. 1 Saxon.

The Imperial Oil & Gas Co. is waiting on standard rig for No. 1 Central Bank, Section 12-17-15, with 1,600 feet of fluid in the hole, 50 per cent salt water, at 2,150 feet. King & Timberlake set 16½-inch at 60 feet in No. 1 Hodges, Section 1-16-17. Livingston and others plugged back to 1,965 feet in No. 4 Roper, Section 3-16-15, and have the work waiting orders.

Magnolia's Work

The Magnolia Petroleum Co. set 6-inch at 2,075 feet in No. 3 Moody, Section 17-17-14; is arranging to set 12½-inch at 3,135 feet, in No. 4 Moody, Section 8-17-14, with 1,900 feet of oil in hole; is fighting fresh water flow at 380 feet in No. 1 Neely in the same section, and has temporarily abandoned No. 2 Meakin in Section 33-15-16, at 2,295 feet after losing seat of 6⅝-inch casing with the hole full of salt water. The McPherron Oil Co. recemented 6-inch at 1,945 feet in No. 1 Murphy, Section 17-16-15, and has drilled to 1,995 feet. The Monarch Oil Co. is swabbing to test at 2,125 feet in No. 1 Harrell, Section 17-16-15. The Murphy Trust set 6-inch at 1,950 feet in No. 2 Lawton and set surface 10-inch and has drilled to 1,810 feet in No. 3 Lawton, both in Section 7-16-15.

Page and others set 6⅝-inch at 1,905 feet and are drilling at 1,910 feet in No. 3 Murphy, Section 15-16-15. The Pan-American Oil Co. is drilling at 1,900 feet in No. B-3 C. L. Saxon, Section 4-16-16. The Phillips Petroleum Co. is waiting on standard rig at 2,000 feet in No. 3 Alphin, Section 11-16-15, with 1,500 feet of fluid in the hole. The Pure Oil Co. tested casing O. K. at 1,965 feet in No. 1 Craig, Section 15-16-15, and has a showing of gas at that depth. In the same section, has derrick up for No. 2 Craig. Roy and others are waiting on casing at 1,960 feet in No. 1 Long, Section 28-16-14.

The Simms Oil Co. is waiting on standard rig for No. 1 Childs, Section 8-16-16, at 2,635 feet. Smitherman & McDonald are waiting on standard rig at 2,265 feet in No. 2 Holloway, Section 6-16-16, with 600 feet of oil in hole. In Section 5-16-16 are drilling at 2,520 feet in No. 3 Saxon, Section 5-16-16, reported for some time as temporarily abandoned and recently with rig off. The Standard Oil Co. set 6-inch at 2,200 feet in No. B-2 Saxon, Section 5-16-16. Starter and others set surface 15½-inch and have drilled to 525 feet in No. 1 Little, Section 21-16-12. Stock and others set 6-inch at 2,125 feet in No. 3 Polk & Ezell, Section 18-17-14. The Sun Oil Co. set surface 12½-inch at about 95 feet in Nos. 5 and 6 Hays, Section 3-16-15.

Tarver and others are bailing casing at 2,240 feet in No. 3 Saxon, Section 5-16-16. The Texas Co. set 12½-inch at 600 feet in No. 2 Guy Hayes, Section 4-16-15; in Section 14-16-15, set 6¼-inch at 1,925 feet in No. 1 E. G. Murphy, Section 14-16-15, and is setting liner at 1,995 feet; in Section 21-16-15 is arranging to swab at 1,990 feet in No. 1 F. G. Johnson; and in Section 2-16-15 is waiting on standard rig at 2,055 feet in No. 1 J. T. Murphy with 500 feet of oil in hole. The Tidal-Osage Oil Co. is rigging up to drill No. 1 Alphin, Section 17-16-15.

The Vitek Oil Co. set 6⅝-inch casing at 2,160 feet in No. 3 Allen, Section 18-17-14. Weatherbee and others set 6-inch at 2,245 feet in No. 1 Holloway, Section 6-16-16. Woodley and others set 6-inch at 2,160 feet in No. 6 Van Hook, Section 8-18-14.

Ouachita County Area

Only one well was completed in this territory. This producer is in the Louann Townsite, approximately half a mile north of the Smith Refining Co.'s producer and the same distance east of a producing well, helping to prove the intervening territory. The well was drilled by W. W. Brown, Section 30-15-16, and came in estimated flowing 200 bbls. of 27.6 gravity oil from 50 feet of broken sand at 1,937 feet.

An increase in drilling activity in this field is noticed this week, nearly all the new wells being in the new territory on the northwest edge. The Arkansas Natural Gas Co. has a rig up for No. 1 Patton, Section 31-15-16. Bashara and others have rig up for No. 1 Patton, Section 32-15-16. Bray-Hawthorne, Inc., set 10-inch at 80 feet in No. 1 Hughes, Section 21-15-16.

The Forest Oil Co. set 10-inch casing at 100 feet in No. 1 Milner, Section 29-15-16. In the asme section the Gulf Refining Co. set 6-inch casing at 2,223 feet in No. 2 Meakin, and Hunt and others set 6-inch casing at 1,875 feet in No. 2 Myers; Johnson and others set 6-inch casing at 2,220 feet in No. 1 Fincher and have derrick up for No. 2; Magnolia Production Co. has a rig up for No. 1 Shirley Berg; Standard Oil Co., rig up for No. 1 Solmson, Trustee.

The Magnolia Petroleum Co. has rig up for No. 2 W. A. Smith, Section 31-15-16. The Riggs Drilling Co. is waiting on 4½-inch casing at 2,210 feet for No. 1 Myer estate, Section 32-15-16. The Smith Refining Co. set 10-inch casing at 100 feet in No. 2 Myar estate and has derrick built for No. 3, Section 30-15-16. In Section 31-15-16 it tested 1,000 feet of fluid at 1,965 feet and is now drilling at 2,040 feet in No. 1 Patton.

Solmson and others shut down No. 1 fee for water at 1,100 feet, Section 30-15-16. The Sure Oil Co has derrick up for No. 1 fee, same section. The V. K. F. Drilling Co. has derrick built for No. 1 Patton, Section 32-15-16. Burch Walker has derrick built for No. 2 and going up for No. 3 Patton, Section 31-15-16.

Heavy Oil Territory

In the heavy oil territory, Section 34-15-15, several wells are under way. The Arkansas Natural Gas Co. set 6⅝-inch casing at 1,860 feet in No. 1 Snyder, Murphy, trustee, has derrick up for No. 2 Snyder. The Owenwood Oil Corp. is down 1,500 feet in No. 1 Snyder. In the same territory the Houston Oil Co. set 10-inch casing at 65 feet in No. 1 Reynolds, Section 27-15-15. The Standard

Continued on Page 120)

HINDERLITER

Scores Again!

TOOL in 2 HOOK

The Hinderliter Two in One TOOL HOOK is designed for hooking into center and straightening upright tools fallen over in enlarged or cavey holes.

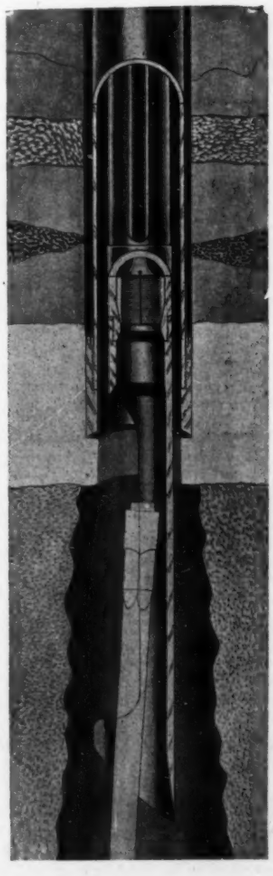
One illustration shows the Hinderliter Two in One TOOL HOOK as applied for fishing out of a hole, below the casing a stem with pin broken off that has fallen over to the side of the wall of an enlarged hole.

The Hinderliter Two in One TOOL HOOK is forged from a solid steel billet, the blade concaved to form a semi-circle, graduated from two hooks on the bottom of the blade that forms a three-quarter circle with long taper points.

Operation: The TOOL HOOK is screwed on the threaded bowl of slip socket that is connected to the regular string of fishing tools which are lowered into the hole to a depth that will permit the TOOL HOOK to encircle the lower part of the lost tools. The TOOL HOOK is pulled up the hole far enough to swing the lost tools erect in the center of the hole and then is backed down the hole over the lost tools. The concaved blade will guide the lost tools into the slip seat of the slip socket that is connected above causing the slips therein to engage, after which the tools are pulled out of the hole.

The Hinderliter Two in One TOOL HOOK is made with Cable Tool Joint or Casing Thread and is used in connection with Slip Socket, Casing Bowl and Combination Socket. Can be used with either right or left lay drilling cable.

Patented



HINDERLITER TOOL COMPANY

Manufacturers of and Specialists in Drilling and Fishing Tools

TULSA, OKLAHOMA

Branches in Principal Oil Fields

California Field Operations

By L. P. Stockman

Situation in California as far as production is concerned is becoming more stabilized. Santa Fe Springs beginning to show material decline. Torrance and Compton expected to be developed conservatively. Long Beach deep sand big factor in production of that area.

LOS ANGELES, Calif., Oct. 6.—The petroleum industry in general has been watching California for several months since this State is the cause of the present demoralization of the industry throughout the United States and holds the key to future production. Those interested are keenly watching California for the first material drop in production, and to those so vitally interested the monthly production figures for September will be of particular importance. There is little question but that the local situation is becoming more stable as time draws on. The number of completions is holding up well in all three of the principal fields, and the most noticeable thing is the decrease in the amount of initial production and accompanying gas pressure of new wells.

Long Beach has been steadily increasing, not so much because of the number of new wells but because of the number of former producers from the upper zones which are being carried down to the more productive sands. This deep sand, between 5,000 and 6,000 feet, controls the immediate future production of this field and the output during the next three or four months will be controlled to a large extent by the number of wells which are now being carried down to completion in this deep zone. There are over 100 wells drilling below the 4,000-foot mark, about half of which are below the 4,500-foot level. These wells will be the principal contributors to the immediate future production, and, while the number appears to be large, their completion will probably be spread out over a period of several months. This condition will tend to stabilize the field production, the new production offsetting the decline in old wells and possibly slightly increasing the total output for the field at different intervals.

State to Show Increase

Those who have been looking for a decline in the total production for the State will probably be surprised to find, if preliminary estimates are correct, that the State's production during September will show an increase of about 25,000 bbls. a day over the August output. Notwithstanding the fact that the State will probably show an actual increase in production, the real condition is not reflected in these figures. Pipe line companies have for several weeks been taking maximum production in all three of the principal fields, which they were not doing for several months previous to this time. The potential State production has, therefore, decreased about 50,000 bbls. a day, while the actual production, under totally unrestricted conditions, has increased. Tanker shipments have also shown decreases during the past few months and it would not be surprising to find that at least 5,000,000 bbls. have been added to stocks during September. While consumption in California is not governed by seasonal changes to the same extent that it is in the East, there is a slight variation, which is due, no doubt, to conditions prevailing at different periods during the year. The consumption of refined products is naturally greater during the summer months and this is reflected in the consumption of crude during this time. With the winter season approaching, consumption will undoubtedly decrease and, unless offset by increased shipments to Atlantic and Gulf Coast ports, the industry will be faced with a surplus during the next few months, which must be stored either as crude or residuum, tops or refined products. Although there is not the amount of storage under construction that there was a few months ago, most of the marketing companies are still erecting steel tanks and cement reservoirs to take care of this anticipated surplus during the coming winter months.

May Open New Pool

Experts have been predicting rapid declines in California production for several months, a few even venturing predictions that the State would be drawing on stocks shortly after the first of the year. It would be a great aid to the industry in general if consumption should exceed production for several months, and, while this is possible, it cannot be of long duration unless production is restricted. The writer is of the opinion that there is another huge pool in the vicinity of Los Angeles which as yet lies untapped and with the large amount of wildcatting being done it is highly probable that it will be opened up within the next year. With development work just getting under way in the Torrance-Lomita Field and with a new field at Compton yet to be developed, the State is assured of a production in excess of its normal consumption for at least two years. It has been only within the past few months that the possibilities of the Torrance Field have been realized, and if this and the Compton Field are developed simultaneously, as was the case with Long Beach and Santa Fe Springs, it is highly probable that another over production situation will arise.

The large marketing companies control, to a large extent, the destines of these two fields and, if they are not over developed, the industry need have no fear for a repetition of the wasteful and uneconomic development of the State's natural resources. The industry has been justly criticized at times and, unless measures are taken to educate the public and legislators, there are many hard times ahead. Losses by the general public through poor oil investments have brought to them the realization of the speculative nature of the industry, but it also leaves a little bitterness because they were taken advantage of in many cases by crooked and unethical operators. It is possible that this may result in undesired legislation, which would not only be a detriment to the industry but it may even result in the classifying of the petroleum industry as a public utility.

Should Stop Town Lot Drilling

Operators in California should immediately unite and put an end to town lot drilling. It has been greatly abused during the last few years and has resulted in great losses not only to the industry at large but to the general public. It has forced the drilling of offset wells and has resulted in the drilling of many wells which should never have been drilled and which can never hope to repay investors. As is always the case, State and National officials cannot cope with the situation where fraud is intended; they must wait until the crime has been committed and by this time the damage has been done. In legitimate cases covering town lot drilling State officials have no alternative except to issue permits for the drilling of wells and the sale of stock. Steps should be taken at once to eliminate town lot drilling because it wastes by unintelligent development the State's natural resources, which should be conserved, and works to the disadvantage of the industry in general, resulting in an over production and decreases in the price of oil. This is one of the principal causes of the present over production which has worked to the detriment of Eastern and California producers, and could have been eliminated entirely or reduced to a minimum by intelligent supervision.

Santa Fe Springs

The initial output of recent completions at Santa Fe Springs has shown a decided falling off and many wells, due to decreased gas pressure, do not seem to have the kick that was so conspicuous a short time ago. Probably the best indication of the decline in production which is taking place is shown by the decrease in the production of new wells. A check of several recent completions shows declines ranging from 25 to 75 per cent. There were only two really good wells brought in at Santa Fe Springs during the past week, both of them being completed by the Petroleum Midway Co. These two wells, both of them new, were No. 2 Baldwin and well No. 3 on Mattern lease No. 2. The latter, completed at 4,723 feet, came in at the rate of 5,375 bbls. a day, while the former, No. 2 Baldwin, drilled to 4,725 feet, came in flowing 4,775 bbls. daily. Both wells were completed with 4½-inch oil strings, the oil from No. 3 Mattern testing 32.9 degrees and the output from No. 2 Baldwin 33.2 degrees. The oil from No. 2 Baldwin was cutting approximately 10 per cent, but, inasmuch as it was mostly mud and water, it will probably clean up after flowing for a day or so. Both wells are flowing through 1¾-inch beans under pressures of approximately 350 pounds.

The Amalgamated Oil Co. and the Shell Oil Co. each completed a new well although the former's well was slightly larger. The Amalgamated's No. 5 Dallugge showed an initial production of 3,250 bbls., while the Shell's No. 6 G. H. & N. came in making 2,750 bbls. Number 6 G. H. & N. struck the pay at 4,632 feet, while No. 5 Dallugge required a little more hole, the completion depth being 4,716 feet. The output from the former is clean and tests 35.1 degrees, while that from the latter tests 35.3 degrees, and shows a cut of 1 per cent. The Mohawk Oil Co. recompleted No. 1 Batson, after redrilling and deepening it from the Bell to the Meyer sand at 4,721 feet. As a result of being deepened, production increased very materially and it is making at the present time slightly in excess of 2,000 bbls. a day. The oil, flowing through a 1-inch bean under a pressure of 250 pounds, is clean and tests 34.3 degrees.

The Jameson Oil Co. is bailing No. 2 after redrilling and deepening it from the Bell to the Meyer sand at 4,582 feet and expects to bring in a fair-sized producer. Number 2 was originally drilled to the Bell sand and produced in this zone for some time before being deepened. The company's latest completion, No. 5, which has just been put on production, was drilled direct to the Meyer sand and completed at 4,602 feet. It was completed as a 900-bbl. well, but it is doing slightly better than this figure, the oil being clean and testing 34.3 degrees. It is flowing through a 1-inch bean under a pressure of 250 pounds.

The General Petroleum Co. only completed one well during the week, but reports the abandonment of two others. No. 87 Hill, at 3,837 feet and No. 69-B drilled to 2,614 feet. The latter was lost while being drilled, while the former, No.

(Continued on Page 127)

TANKER SHIPMENTS FROM LOS ANGELES TO ATLANTIC AND GULF COAST PORTS

Following is a list of tankers, date departed, destination, kind of cargo and amount in barrels:

Halo, September 24, Boston, crude	75,000
John D. Archbold, September 24, New York, crude	120,000
Durango, September 25, New York, crude	70,000
Hadnot, September 25, New York, crude	65,000
J. W. Van Dyke, September 25, Philadelphia, crude	75,000
San Felix (Br.), September 25, Tampico, crude	124,000
Birkenhead, September 26, Philadelphia, crude	75,000
Matin cock, September 26, New York, crude	67,000
Oleander (Br.), September 26, Tampico, crude	68,000
Hampton Roads September 27, Fall River, crude	70,000
Wm. G. Warden, September 27, New York, crude	100,000
John D. Rockefeller, September 28, New York, crude	76,000
W. W. Mills, September 28, Philadelphia, crude	75,000
San Macedonia (Br.), September 28, Tampico, crude	65,000
Bidwell, September 29, New York, crude	80,000
Cecil County, September 29, Fall River, crude	70,000
Nora, September 30, New Orleans, crude	95,000
Exports	
Albertolite, September 28, Peru, fuel	75,000
Vancolite, September 30, Chili, fuel	80,000
Coastwise	
Lubrico September 24, Richmond, crude	80,000
Frank H. Buck, September 24, Avon, crude	77,000
W. S. Miller, September 24, Richmond, crude	75,000
Warwick, September 25, Edmonds, refined	45,000
Montebello, September 25, Oleum, crude	77,000
R. J. Hanna, September 25, Richmond, crude	80,000
Col. E. L. Drake, September 26, Portland, refined	25,000
K. R. Kingsbury, September 26, Richmond, crude	85,000
Paul Shoup, September 26, Avon, crude	80,000
Frank G. Drum, September 26, Avon, crude	75,000
Deroche September 27, Oleum, crude	80,000
La Brea, September 28, Seattle, refined	60,000
Lubrico, September 28, Richmond, crude	80,000
Hulaco, September 28, Avon, crude	75,000
W. S. Miller, September 28, Richmond, crude	75,000
R. J. Hanna, September 29, Richmond, crude	80,000
H. F. Harper, September 29, Point Wells, refined	20,000
Montebello, September 30, Martinez, crude	76,000
From San Francisco	
Wm. H. Doheny, September 25, Pearl Harbor, fuel	75,000
Mojave, September 26, Seattle, refined	50,000
J. A. Moffett September 29, Astoria, fuel	60,000
Charlie Watson, September 29, Eureka, refined	15,000
El Segundo, September 30, Point Wells, refined	30,000
Kewanee, September 30, Astoria, fuel	30,000
From Port San Luis	
Los Angeles, September 21, Seattle, fuel	70,000
Santa Maria (Br.), September 24, Balboa, fuel	75,000
Stockton, September 26, Seattle, fuel	80,000

Spencer Compressor Station—United Fuel Gas Company, Spencer, W. Va.

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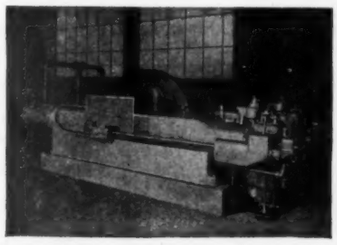
Years ago when we first began building gas engines the question of delivery was one we liked to avoid for it was then necessary to build the engines after the orders were received.

Today the Cooper 485 H. P. size has become the established standard for the larger compresser stations throughout the country. So far this year we have shipped twelve units—one to the Owens Bottle Company Natural Gas Department and four to the United Fuel Gas Company in West Virginia, one to the Empire Companies in Kansas and six to the Midwest Refining Company in Wyoming. Three more are in process of construction in our shops. We have built as many as twenty-four of this size in one year.

Such standardization on the part of the trade has made it safe for us to always have from three to five of these engines under construction on a quantity basis for stock. This permits us to offer a quicker delivery on large gas engines which in many cases has meant a saving of thousands of dollars on an installation.



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Gulf Coast Oil Operations

By P. L. McGreal

Operators are curtailing operations throughout Coastal Pools. Luling is most active but even there a slowing down is noted. A second high gravity well was completed in the Mirando City-Schott district making 40 bbls. of 45 gravity oil. Some wildcats are showing oil and gas.

HOUSTON, Tex., Oct. 8.—Operations in the Gulf Coast region have reached the stage where there is scarcely anything to review as far as the southwest districts are concerned; Luling Field is the most active spot and even there a letup is noted, due to excess storage, a limited demand and difficulties incident to shipping out the product in tank cars. Interest in the Laredo fields centers in some deep tests and slight extensions of the old territory.

The estimated daily average gross production of the Gulf Coast pools, the southwest districts and the shallow sand section of Milam County is placed at 98,500 bbls., a decrease of 700 bbls. from the estimate for last week. The estimate for the heavy gravity Gulf Coast pools alone is 91,190 bbls. compared with 91,865 bbls. last week. The estimate for the Luling Field is 9,600 bbls. One month ago the estimated gross for the coastal region and the southwest fields was 111,485 bbls. and for the Gulf region alone 101,080 bbls.

The estimate for each district is as follows:

District—	Bbls.
Batson	1,315
Blue Ridge	830
Barber Hill	520
Dayton	80
Damon Mound	2,090
Edgerly	415
Goose Creek	13,700
Humble	6,400
Hull	21,150
Jennings	750
Markham	110
Orange	14,600
Pierce Junction	620
Spindletop	835
Saratoga	1,770
Sour Lake	5,680
Somerset and P. Pintas	3,460
Vinton	5,820
Welsh and Anse La Bute	85
West Columbia	14,420
Miscellaneous	3,850
Total	98,500

Southwest Fields

In the Luling Field, Phillips and others' No. 1 Byrd, completed at 2,149 feet, started with an initial flow of 1,200 bbls. It is on one acre in proven territory. Less sulphur water is showing in the old producers in the field, some of the wells that made as high as 20 per cent now being cut down to 10 per cent.

Among the outside tests attracting attention is that of the Soda Springs Oil Co.'s No. 1 Bolton, in which casing was set at 2,500 feet, or approximately 400 feet deeper than where the producing sand is found in the old field. The Luling Production Co. set casing in No. 1 Grady as did the Big Gusher Oil Co. in No. 1 Walker. The Grayburg Oil Co. is drilling No. 1 Blackwell, supposedly off the structure. The Prairie Lea Oil Co. has started No. 4 Merriweather and the Rydall Oil Co.'s No. 3 C. Byrd, both in old territory. The Seal Creek Oil Co.'s No. 2 Proctor has started. Kittles and others' No. 1 Davis, south of Delhi, is drilling below 650 feet. Green and associates are drilling No. 1 Ott, 3 miles north of Delhi and 6 miles northwest of the Kittles test.

Extending into Bastrop County, northwest from the Luling Field, the test on the Cole land near McMahan is drilling around 1,385 feet. The Midwest-Texas Oil Co.'s No. 1, near Lyton Springs, is drilling around 2,000 feet, and the Garza test, 18 miles north, in the Austin chalk at 2,000 feet. The Triangle Oil Co.'s No. 1 Valenta was abandoned in sulphur water at 2,500 feet and the rig moved 1½ miles northeast for another test.

The United North and South Oil Co. is trying to extend the structure to the southeast from the Luling Field across the San Marcos River over into Guadalupe County. Four tests will be drilled. M. Burman has a location near Imhoff in that county.

Laredo Districts

A second high gravity well has been developed in the Mirando City-Schott district in Webb County. It is the Carnahan Oil & Refining Co.'s No. 8, good for 40 bbls. at 1,915 feet, 45 gravity. The Magnolia Co. got the first well two months ago in No. 12 at 1,940 feet. It was about the same capacity well and the same gravity. The first wells in that district got the sands at 1,600-1,700 feet. The Chico Pool Oil Co.'s No. 1 Chico on the north side of the Mid-Ojulas district, is rated at 120 bbls. at 1,675 feet. Richard and others' No. 1 Garcia is a 60-bbl. well.

The Caroline-Texas Oil Co. is deepening No. 5 from 3,195 feet, after a prolonged shutdown of the test. The Witherspoon Oil Co. is deepening No. 13 to where the Magnolia and Carnahan Companies got the light gravity oil. Many of the producers in the various districts are shut down for storage and a change in the market conditions. Tank car shipments during September total 588 cars compared with 622 cars in August.

In Bexar County, the Gas Ridge Oil Co.'s No. 5 Voges is drilling and the Witherspoon Oil Co.'s No. 1 Fuller in Atascosa County has started. The J. K. Hughes Co. is drilling No. 3 Stephens in Gonzales County. In Duval County the Humble Oil & Refining Co.'s No. 2 Walsh, south of the shallow Piedras Pintas Pool is drilling at 2,670 feet and No. 5 Singer on the southwest side of the Palangana Dome is below 1,100 feet. Autry and associates' No. 2 on the dome is below 765 feet.

In Reagan County, the Texon Land Development Co.'s No. 2 Santa Rita is at 2,720 feet, with 10-inch casing set at 2,000 feet. No. 3 is fishing at 500 feet. No. 1 is credited with 10,200 bbls. since June 25 when it came in at 3,026 feet with the bit 18 inches in the sand. The oil is shipped to the Rio Grande Refining Co. at El Paso. The Transcontinental Oil Co. has taken a lease on 15 sections of University land in Reagan County at 10 cents per acre and a filing fee, which aggregates $2.56 per section. The location is about 10 miles south of the Santa Rita well. In Crockett County, the Crockett Drilling Co.'s No. 1 Shannon is below 750 feet with a location for No. 2. Its No. 1 Massey is drilling at 400 feet. The Enders-Smith Co.'s No. 1 University land is a derrick.

Wildcats Show

The Texas Exploration Co.'s No. 13 Warren on the north side of the Hockley Dome in the northwestern part of Harris County, is bailing at 1,816 feet with two and one-half joints of screen set. It shows gas and some oil. A previous test at 1,552 feet developed salt water. No. 14 Warren is drilling at 365 feet.

The Brazos Oil Co.'s No. 2, near Carlos, Grimes County, 23 miles east of Bryan, is reported making small heads at irregular intervals at 2,800 feet.

Thomas Mounts' No. 1 Beal, Karnes County, is reported showing oil and gas at 1,170 feet with the bit 2½ feet in the Nacotosh sand.

The community deep test being drilled in the old shallow sand section of Nacogdoches County, is making gas. Casing is being set at 1,280 feet. To the north in Rusk County, David Osborne and H. H. Neagher, of Pittsburgh, are resuming work on the "chicken feather" well, 3 miles north of Henderson, shut down at 2,400 feet. The Coleman test at Pine Hill is drilling at 2,250 feet.

In the new shallow sand section of Aneglina County, Paggi Brothers have an 8-bbl. well in No. 1 Holman at 780 feet. It offsets the H. C. H. Jennings wells. Jennings has contracted to drill six more wells. Pike and others are starting No. 1 Ellison.

Milam County Shallow Sands

Wilson & Co.'s No. 1 Coulter in Milam County is a 6-bbl. pumper at 1,130 feet. The Lee Oil Co.'s No. 4 Neihaus is a 20-bbl. well and the Shelander No. 1 is making 8 bbls. of oil and water. W. W. Bynum has started No. 2 Niehaus. According to the gross production tax reports the shallow sand production shows an increase of 5,567 bbls. for the second quarter of the year over the first quarter. The daily average is 624½ bbls. for the second quarter against 549 bbls. for the previous three months.

Gulf Coast Pools

The two most important tests in the coastal region are the American National Oil Co.'s No. 1 Winifree at Orange and the joint No. 1 on the Hannah at Hull by The Texas Co. and Vacuum Oil Co. Fifteen feet of screen has been set in the first named at 3,425 feet and the crew is bailing. If a well is developed it will extend the limits of the Orange Pool 1 miles to the north and a little east. The Hull test is about 2,000 feet southwest from production. It was drilled to 3,500 feet and went into heaving shale. The hole was plugged back to 2,990 feet where a previous test was made and a small well developed with 6-inch screen set. It is now proposed to set 4½-inch screen inside of the 6-inch and make another test of the sand. The Gulf Production Co.'s No. 2 Harrison fee on the northwest side of the Hull Dome is credited with 1,000 bbls. initial flow early in the week at 3,120 feet.

The Sinclair Oil & Gas Co. junked and abandoned No. 19 Jackson at Damon Mound at 3,188 feet. Its No. 7 Williams there is idle at 2,365 feet. In fact, the Sinclair Co. has suspended all work at Damon Mound. The Humble Oil & Refining Co.'s No. 1 Damon there is drilling below 1,000 feet.

The Gulf Production Co. and Snowden & McSweeney's joint No. 6 Davis at Big Creek, the new pool in Fort Bend County, is testing again to restore it to production. This well was flowing 900 bbls. per day at 3,880 feet, but sanded when it was pinched in to 200 bbls. A location has been made for No. 7 Davis, 1,000 feet northwest. The Lake View Oil Co. abandoned No. 37 Hardin at Sour Lake at 2,000 feet.

News from Fields of Canada

By Victor Lauriston

CHATHAM, Ont., Oct. 6.—In the Okotoks Field, southwest of Calgary, Royalite Oil Co., No. 4 Section 7-20-2w-5, has developed a gasser with an estimated flow of 7,000 feet per day. Royalite Oil Co. is a subsidiary of Imperial Oil, Ltd., organized a few years ago to take over the Dingman interests in the Okotoks Field. A gas flow, estimated at 2,000,000 feet was encountered in the upper horizons in No. 4, and on being deepened to 2,891 feet, the flow increased to 7,000,000 feet. It is expected another gas sand will be met 22 feet below this level. The test was started primarily to secure oil, and the gas will be shut off and drilling continued. The gas is a wet gas, similar to that in the other Dingman wells, and will be handled in the Royalite Oil Co. gasoline absorption plant, the dry residual being delivered through a 6-inch pipe line to the main pipe line of the Canadian Western Natural Gas Co. near Okotoks, for distribution to Calgary. It is understood that the present compression plant, consisting of six compressors, is being increased to 10 compressors to deliver the gas to the Canadian western line.

Increases Prospects

The strike materially improves the prospects for a steady gas supply for Calgary and other points served by the Canadian Western Natural Gas Co., and as a result the new Foremost Field, also developed this year, will not at present be connected with the Canadian Western line system. An unofficial estimate indicates that the company has in the Okotoks, Barnwell, Bow Island and Foremost Fields an aggregate production of 29,035,000 feet, line pressure basis, to supply Calgary, Lethbridge and other markets. Of this production approximately 8,000,000 feet is in the Okotoks Field, 1,500,000 feet in the Barnwell Field, and 7,000,000 feet in the old Bow Island Field, with 11,500,000 feet in No. 1 well, Foremost Field, which has been shut in pending results of further development work. The Canadian Western is continuing its drilling for gas in the Foremost and Barnwell areas.

It is understood Royalite Oil Co. No. 4 in the Okotoks Field will be deepened for oil; and No. 5 may be located this fall. No. 1 (Dingman well) is reported to show a decrease of 75 per cent from its original wet gas production. No. 4 is the largest gasser yet drilled in this field and is apparently at a higher point on the structure than the other tests. Drilling in the Okotoks Field is decidedly difficult and expensive, the formations being extremely hard and the structures small, narrow and sharply inclined.

In Irma-Wainright district, east central Alberta, Imperial Oil, Ltd., Crattan No. 2, Section 14-45-8w-4, is reported shut down at 2,150 feet after drilling through a gas sand. British Petroleums, Ltd., No. 2, Section 30-46-6w-4, is reported to have got the cap rock at 2,060 feet and is drilling. A Calgary syndicate is reported to have leased territory at Falun, southeast of Pigeon Lake and is securing a rig for a test. This is not far from the Mutual Oil & Gas Co. test on Section 14-47-27w-4 which is drilling around 1,000 feet with some gas. General Oil & Development Co. of Vancouver, B. C., has secured the rotary drilling outfit of the Boundary Bay Oil Co. which has been in use in the Fraser Valley Field in British Columbia; and

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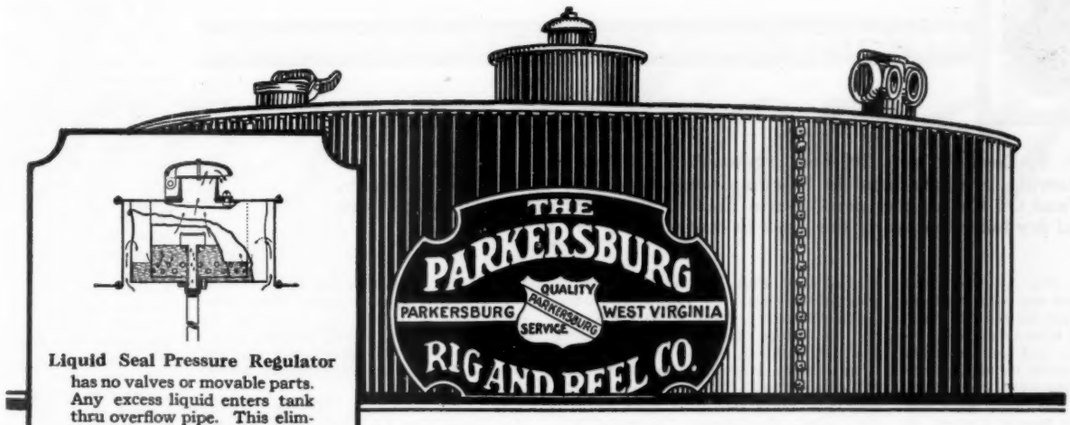

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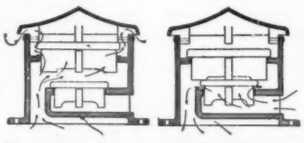

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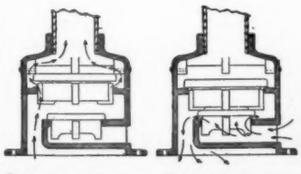

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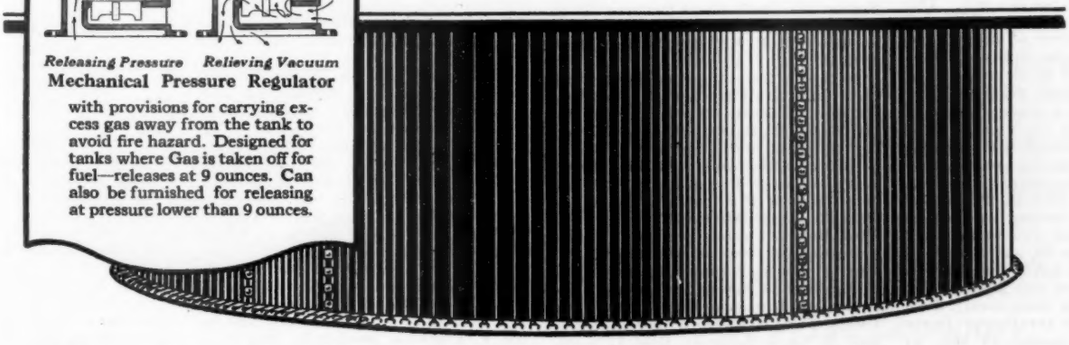

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Fields of the Central West

By Whit

W. S. Raydure gets 100-bbl. producer in Cumberland County, Kentucky. Showing in Berea sand in Martin County, and also in Lawrence County. Wood Oil Co. making deep test in Estill County. Small producers, gassers and dry holes feature of the week in central Ohio and Illinois fields.

FINDLAY, Ohio, Oct. 8.—The usual number of completions are reported from the Central West Field for the week, the bulk located in the Kentucky fields, although northwestern and central Ohio did their part, and while no big completions were recorded the wells were pleasing to the owners. The report of a find in the Berea sand in Martin County, in eastern Kentucky, is the feature of the week, and the thickness of the Berea sand is something out of the ordinary in this test, reported to show 64 feet of that sand at 1,500 feet. A nice gas well is reported in Knott County, in southeastern Kentucky, while in south-central Kentucky, W. S. Raydure is reported to have brought in a 100-bbl. well on the J. M. Riddle, in Cumberland County.

Indiana failed to report a completion while Illinois had but three. Central Ohio is credited with a large number of new wells, mostly gas and dry holes, and a large amount of new wildcat work is reported from Tennessee, Alabama, Georgia, Mississippi and Florida.

The old Trenton Rock, or Lima Field, of northwestern Ohio reports its usual number of new wells, although smaller producers than usual, but good wells for that territory. The important find in the Lima Field was a nice gas well drilled by the Central Ohio Gas Co., in a wildcat on the southwest corner of the C. A. Roberson farm, Section 23, Cuma Township, Hardin County, and far to the south in advance of the old field. This well got its pay at 1,401 feet and the well showed a rock pressure of 350 pounds. This well should cause drilling activity by the gas companies in the new area.

Extends Lima Field

The old Lima Field is being gradually extended in most all directions. Wood County is also increasing its producing areas where years ago the territory now being drilled was considered worthless. In Lake Township, between Toledo and Woodville, C. F. Zeising and others drilled in their second well on the Emil Berndt farm, Section 36, and showed 90 bbls. production at 1,297 feet, and in the first pay sand of the Trenton. In Perrysburg Township, same county, John E. Welton's test on the George Dauer farm, Section 32, pumped 10 bbls. at 1,293 feet. The good well of last week, drilled by the Western Ohio Oil Co., in No. 2 Loose-Walbridge farm, at the north limits of the town of Cygnet, in Bloom Township, Wood County, that showed 90 bbls. natural, is holding up in a remarkable manner, and No. 3 is now starting a short distance west of the interurban line. The area between Cygnet and North Baltimore is attracting attention as is that between Cygnet and Bairdstown, while north of Cygnet almost through to Toledo, large acreage has been leased for development.

South of Findlay, in Biglick Township, Hancock County, Cochran & Moore drilled a test on the J. D. Moore farm, Section 17, with a production of 23 bbls., and which adds a nice scope of undrilled territory. In Eagle Township, same county, Fuller and others only got a 1-bbl. pumper in No. 12 H. P. Smith, Section 18.

In Marion Township, Allen County, the second test drilled by the Federal Oil Co. on the Phil Heltner, Section 10, pumped 25 bbls. In Logan Township, Auglaize County, Lang & Kirk's No. 16 on the J. H. Gochenour, Section 3, pumped 10 bbls.

In Liberty Township, Mercer County, the Liberty Oil Co.'s Nos. 5 and 6 Rodabaugh-Vining, Section 9, were reported dry holes. In Liberty Township, Van Wert County, Boyd & Stelzer's No. 1 W. H. High, Section 25, was a duster.

In Harris Township, Ottawa County, the Zorn-Hornung Co.'s No. 5 Belle Clay, Section 20, pumped 12 bbls. at 1,332 feet. In Section 21, the Scott Oil Co.'s No. 2 N. J. Henry pumped 4 bbls. at 1,325 feet, and the Harris Oil Co.'s No. 5 Henry Dietermyer, Section 23, pumped 6 bbls. at 1,295 feet.

Central Ohio

In the Central Ohio Field a rather busy week was reported, a total of 26 completions, of which 9 were dry and 17 were gas wells, no oil producers being listed. Five locations were abandoned and 32 new locations staked out, mostly by the large gas companies, as development work for oil is not being pushed.

In Walnut Township, Fairfield County, the Ohio Fuel Gas Co. drilled a very light gas well at a test on the M. W. Watson 54 acres, Section 29. The Logan Gas Co.'s No. 4 M. F. Taylor 181-acre farm, Section 15, was a dry hole, and this company made a location for No. 4 on the Silas W. Kinney 141 acres, Section 24. In Richland Township, same county, the Ohio Fuel Gas Co. located a test on the F. E. Drumm 6 acres, Section 15.

In Brown Township, Knox County, the East Ohio Gas Co. abandoned locations for No. 5 Gustave Sniveley, Section 28; No. 3 G. E. Gunkel, Section 29, and No. 1 L. L. Reed, Section 14. This company in the same township, drilled a dry hole on E. F. and Lucky Lifer 122 acres, Section 19; drilling No. 1 S. D. Reed 21 acres, Section 15, and No. 2 Fred Motz 101 acres, Section 11; made a location for tests on the Donald Colopy 53 acres, Section 13, and No. 1 C. L. Horn 55 acres, Section 11.

In Clay Township, Knox County, the Heisey Gas Co. drilled a very small gas well in No. 3 Benjamin Ross 71 acres, Section 18. In Butler Township, the Ohio Fuel Gas Co. started drilling at a test on the W. B. Griffin 243 acres, Section 22.

In Hanover Township, Ashland County, the Logan Gas Co.'s No. 1 Tschamtz, Section 21, is a duster. This company is drilling No. 1 Fred Feichter 145 acres, Section 27, and made a location on the L. E. Cady 40 acres, Section 5. Ohio Fuel Gas Co. has started a test on the William Fisher 52 acres, Section 2. East Ohio Gas Co.'s Nos. 3 and 4 J. B. Date 130 acres, Section 17, both very good gas wells. Same company located a test on the F. M. Date 160 acres, Section 8.

Medina County

In Harris Township, Medina County, Hulse & Koontz drilled a light gas well at a test on the J. H. Crawford, Lot 113. In Liverpool Township, the Logan Gas Co.'s test on the F. H. Dieterick, Section 17, is an average small gas well, with No. 2 Andrew Nilges, same section, drilling. In Chatham Township, Medina County, the East Ohio Gas Co. is drilling No. 4 C. G. Chapman lease. Same company made a location for a test on the Ellen G. Rice 192 acres, Lot 48, Litchfield Township, and the Logan Gas Co. made a location on the Roman Walter 66 acres, Lot 56.

In York Township, Medina County, the Logan Gas Co. drilled average gas wells at No. 1 G. F. Gunkleman, Section 23, and No. 1 Fred Kemp, Section 10, and drilling No. 3 Henry C. Speith, Section 4. This company also made a location for No. 1 P. Diehl 15 acres, Section 15; No. 3 Fred Gayer 35 acres, Section 22, and No. 2 Allen B. Weiss 34 acres, Section 13. The Ohio Fuel Gas Co. started drilling No. 4 George Acker, Section 3.

In Avon Lake Village, Section 20, J. W. Cushing started drilling a second well on the F. J. Krebs. In Columbia Township, the Ohio Fuel Gas Co. made a location for a test on Clara J. Wilder 58 acres, Section 22, and No. 1 on the Richard Putt 160 acres, Section 29.

In Franklin Township, Wayne County, the Ohio Fuel Gas Co. made a location on the Newton Jones 149 acres, Section 17. The Logan Gas Co. drilled a dry hole on the A. P. Walter, Section 9, East Union Township, and after a 20-quart shot was reported dry. In Congress Township, the Ohio Fuel Gas Co. is drilling No. 1 John Ferguson, Section 21, and John Gast and others started a test on the J. M. Marsh, Section 12. In Milton Township, the East Ohio Gas Co. is drilling on the Raymond Babcock 82 acres, Section 31.

In Wayne Township, Wayne County, the East Ohio Gas Co. drilled a dry hole on the S. McCoy, Section 16. Klise-Eckstein-McCann Co. abandoned No. 2 on the W. A. Taylor 9 acres, Section 9. Central Ohio Gas Co. made a location for No. 1 on the W. R. and M. D. Reese 105 acres, Section 5. In Chippewa Township, the East Ohio Gas Co. is drilling on the Pazquale Volpel 78 acres, Section 20.

In Cannan Township, Wayne County, Warn & Jordan's test on the E. A. Jordan, Section 12, is a very nice gas well. The Ohio Gas Co. drilled a dry hole on the V. Everwine, Section 1. The Central Ohio Gas Co. started drilling No 1 R. S. Nosker, Section 11, and made a location on the H. E. George 33 acres, Section 2. Brinkerhoff and others are drilling No. 2 A. Smith, Section 15, and Bowers and others their No. 1 on the R. C. Grandee, Section 11. Klise Eckstein McCann Co. has a location on the L. H. Grandee 30 acres, Section 26.

Wayne County Work

In Plain Township, Wayne County, the East Ohio Gas Co. abandoned its location on the C. Hardesty, Section 5, and completed a light gas well at No. 3 C. O. Portz, Section 36. The Logan Gas Co. drilled a small gas well in No. 3 on the J. J. Risser, Section 18, and made a location for No. 1 C. C. Hooleman 40 acres, Section 36, and No. 1 S. Garn 291 acres, Section 12.

In Benton Township, Hocking County, the Ohio Fuel Gas Co. drilled a dry hole in No. 1 George A. Schael, Section 36, and is drilling No. 1 C. W. Davis, Section 28. The Logan Gas Co. has started a test on the J. S. and C. Cain, Section 22.

In Ripley Township, Holmes County, the Central Ohio Gas Co. drilled a fair gas well in No. 2 J. B. Williams, Section 13. The Ohio Oil Co.'s No. 1 L. C. Sprowl, Section 25, is a duster. The East Ohio Gas Co. is drilling No. 2 E. and R. Scott, Section 1, and made a location on the Martin A. Martin 54 acres, Section 14. In Monroe Township, the same company drilled an excellent gas producer on the J. A. Baker, Section 16. The Central Ohio Gas Co. started drilling No. 1 H. E. McMillan, Section 22, and made locations for No. 1 T. P. and A. A. Conner 20 acres, Section 17, and No. 1 Alex W. Frederick 58 acres, same section. The Ohio Fuel Gas Co. made a location for No. 1 B. E. Clinger 51 acres, Section 19, and No. 1 Oscar Koras 83 acres, Section 12. In Prairie Township, same county, the East Ohio Gas Co. brought in a good gas well on the Avery Metcalf, Section 30. The Ohio Oil Co. made a location for No. 1 on the F. A. and Ida Phillips 112 acres, Section 31. The Ohio Fuel Gas Co. made a location for Nos. 2 and 3 on the Cornelia Lecky 153 acres, Section 30. The Logan Gas Co. started drilling a test on the W. H. Heffelfinger, Section 6, Washington Township, same county.

In Washington Township, Jackson County, the Ohio Fuel Gas Co. drilled a light gas well in No. 3 J. W. Harberger, Section 12, and drilling No. 3 Minnie Walker, same section. In Franklin Township, same county, the Ohio Fuel Supply Co. drilled a very fair gas well on the F. H. Johnson, Section 11, and drilling No. 2 William Steele, Section 13. In Lick Township the Ohio Fuel Gas Co. drilled another good gas well in No. 3 J. C. Poor, Section 24, and drilling No. 1 Grafton McGhee, Section 23.

In Amos Township, Athens County, the Ohio Fuel Supply Co. failed to find any pay in the salt sand and going down to the Big Injun on the W. R. Phillips, Section 8. The Logan Gas Co. started drilling a second test on the W. and H. Dye, Section 12, Carthage Township, same county.

In Brooklyn Township, Cuyahoga County, the East Ohio Producing & Refining Co. got a dry hole on the W. J. Hay, Section 17. Top of Clinton was found at 2,805 feet and drilled 30 feet to 2,835 feet.

Operators are spearing around for oil production in Licking and other counties in the central Ohio area, in expectations of picking up production in either the Berea, Big Injun, Stray or Clinton sands.

Illinois Field

Quietude prevails in all sections of the Illinois Field and completions are few. In the southwestern section, in the Ava Field, of Jackson County, the Mid-Egypt Oil & Gas has made what looks like a nice extension to the oil producing area of that field. This company's second well drilled on the Gerberding farm, Section 14, Bradley Township, looks like a 12-bbl. pumper and extends the producing area close to 2 miles. One of the early wells was drilled on this farm, but encountered a heavy dose of water, with a showing of oil, but natural gas was sought for and the well was plugged. Figuring exactly, the new oil well is a mile southwest of the Ditch farm oil wells. The drill only penetrated the oil sand 4 feet, where it was stopped through fear of entering the salt water sand. Two other wells by unknown parties were drilled in Ora Township, same county, and both had an excellent showing of gas, but both flittered out, showing that the wells were edge ones on the Ava structure.

In Martinsville Township, Clark County, the Ohio Oil Co.'s No. 9 J. W. Atkins, Section 30, pumped 45 bbls. from the stray sand at 1,401 feet.

Eastern Kentucky

Operators in the eastern Kentucky fields appear to keep the drill moving in both the North and South Weir Fields of the Big Sandy Valley. Most of the

(Continued on Page 84)

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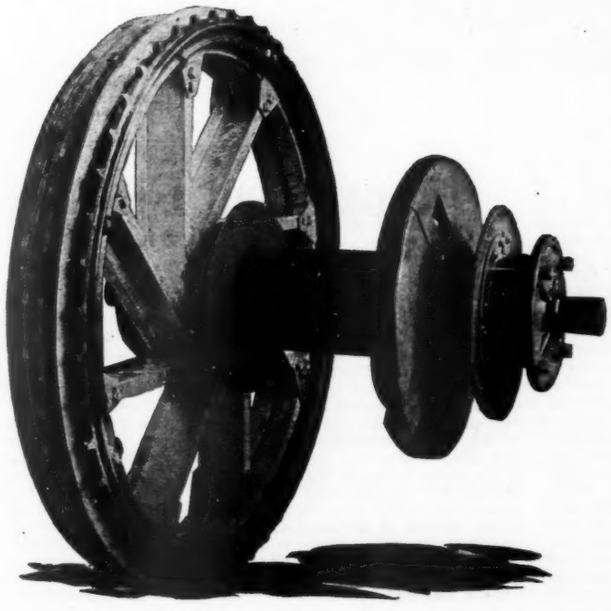

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second test drilled by the Federal Oil ing. In Chatham Township, Medina 28. The Logan Gas Co. has started a (Continued on Page 84)

News of Mexican Oil Fields

By George Blardone

National Lines' drilling subsidiary brings in 1,500-bbl. producer in Halcon section of Panuco Field. Rich Mex Co.'s No. 9, Lot 1 Cacalilao (4-B), makes 200 bbls. Transcontinental Petroleum Co.'s No. 30, Lot 4 Cacalilao, making 2,500 bbls. at 1,970 feet. New pipe line developments.

TAMPICO, Mex., Oct. 1.—Production of petroleum in Mexico can now be reckoned at, say, 406.240 bbls. the day, or an average of 12,187,240 bbls. a month. These figures contemplate all commercial pools in the Republic. In addition, an average of, say, 350,000 bbls. a month is being imported from California, which, added to the domestic production, means a total of 12,537,240 bbls. a month available for export and domestic consumption.

By pools the daily production at this writing can be estimated substantially as follows:

	Bbls.
South Fields, all pools	155,000
Panuco (Cacalilao rated 130,000)	236,000
Ebano	9,000
Topila	6,240
Total	406 240

Recent Completions

The best well of the past week was scored by the drilling subsidiary of the National Lines, in the Federal zone of the Halcon sector of the Panuco Field. The well was completed at the shallow depth of 1,785 feet, rated good for 1,500 bbls. Rich Mex Oil Co.'s No. 9, Lot 1 Cacalilao (4-B), is called a 200-bbl. well at 2,268 feet; and its No. 6, same, is reported abandoned at 2,060 feet. Mulcahey and others' No. 8, Lot 1 Cacalilao (1), will slop 40 bbls. at 2,202 feet; and his No. 5, in 1-C, same lot, is a duster at 2,350 feet. Transcontinental Petroleum Co.'s No. 40, in Lot 4, same sector, is a duster at 2,015 feet. La Corona Petroleum Co. has a salt water well in No. 2 Caposo, on the southern edge of the older Panuco, which occasioned no particular surprise. The drill developed the water at 2,795 feet. Mexican Atlas Petroleum Co.'s No. 4 Juarez is a duster at 1,800 feet, which shows what an offset will do at times on a very small tract, as this test was put down in the hope that it would emulate No. 3, which is an actual producer of 2,500 bbls. at 1,270 feet, marking it the shallowest producing well ever drilled in the Panuco Pool (previously reported.)

In the South Fields, International Petroleum Co.'s No. 38 Toteco is a dry hole at a subsea level of 1,555 feet. Transcontinental Petroleum Co.'s No. 2, Lot 197 Amatlan, drilled into salt water at a sub-sea level of 1,613 feet.

Panuco—Cacalilao

Transcontinental Petroleum Co.'s No. 30, Lot 4 Cacalilao, is a good well now as it is making 2,500 bbls. as the drill descends at 1,970 feet in the limestone. This company's other operations in this sector and lot are best described as follows: No. 26 has cemented 10-inch in the San Felipe at 1,300 feet; No. 27 is drilling with the hole full in a similar formation at 1,800 feet; No. 31 in shale at 490 feet; No. 33 in shale at 850 feet; No. 34 in a similar formation at 1,070 feet; No. 37 drilling at 150 feet. La Corona Petroleum Co.'s No. 22, Lot 4, drilling in the San Felipe limes at 1,430 feet; No. 29, Lot 1, is in a similar formation at 1,910 feet; No. 41, Lot 4, is a derrick; No. 38, Lot 4, has cemented 8-inch in the San Felipe at 1,203 feet; No. 42, Lot 4, drilling in gray shale at 970 feet; No. 31, Lot 1, drilling in the San Felipe at 1,370 feet, and No. 43, Lot 1, drilling at 270 feet. Credito Petroleum Co.'s No. 19, Lot 1, is drilling in limestone at 2,000 feet with a showing of oil. Kone & Willis' No. 3, Lot 1 (2-C), has cemented 8-inch in the San Felipe at 1,240 feet. Mexican Gulf Oil Co.'s No. 33, Lot 1 (4-C), cemented 8-inch in the San Felipe at 1,320 feet; No. 35, same, drilling in shale at 315 feet, No. 37 drilling at 145 feet. Mulcahey and others' No. 3, Lot 1 (1-A), cemented 8-inch in the San Felipe at 1,215 feet. International Petroleum Co.'s No. 24, Lot 5, is drilling in gray limestone at 1,230 feet; No. 6, same lot, in a brown limestone at 2,427 feet; No. 27, same, in red shale at 140 feet; No. 40, same, rigging, and it is moving in for two more tests in its fraction of Lot 4. Mexican Sinclair Petroleum Corp.'s operations in Lot 3 are as follows: No. 11, drilling in limestone at 1,850 feet; No. 13, drilling in a similar formation at 1,710 feet; No. 14, drilling in shale at 1,080 feet; No. 16, drilling in the San Felipe at 1,610 feet; No. 27, drilling in the same formation at 1,675 feet; No. 33, drilling in blue shale at 345 feet; No. 35, rigging, while No. 36, Lot 2, is moving in. Rich Mex Oil Co.'s No. 13, Lot 1 (4-B), is drilling in shale at 275 feet; No. 20, same, cemented 8-inch in the San Felipe at 1,165 feet; No. 22, drilling in the San Felipe with a showing of oil at 1,640 feet. Venable and others' No. 2, Lot 1, (2-B), drilling in limestone at 1,810 feet.

Other Panuco Sectors

In the older sectors of the Panuco Field, operations are best described as follows: East Coast Oil Co.'s No. 8 Palangana, drilling in a broken lime at 2,350 feet, too deep for much hope; and No. 429 Ingenio, drilling in a similar formation at 1,520 feet. Mexican Gulf Oil Co.'s No. 9 Lopez is drilling in limestone at 1,300 feet. International Petroleum Co.'s No. 6 Tanchicuin is drilling in a white limestone at 2,675 feet; No. 7, cementing 8-inch in shale at 1,500 feet, and No. 8, drilling in a similar formation at 1,340 feet. New England Fuel Co.'s No. 5 Cruz is drilling in limestone at 1,645 feet. Vera Cruz Mexican Petroleum Co.'s No. 1, Lot 1 Buena Vista, is in the shell at 1,200 feet. Talvez Oil Co.'s No. 5 Maza Buena Vista, is drilling in limestone at 2,150 feet. Sol Oil Co.'s No. 1 Tanchisol is rigging rotary, and No. 3 Salvasol is drilling in shell at 1,310 feet. This is the latest company to attempt to win the pay in the Federal zone along banks of the Panuco River in the Panuco district.

South Fields

In the South Fields, La Corona Petroleum Co. is again going to attempt to win the pay with three wildcats ranging from the San Isidro, south of the Tuxpam River, to Comales, west of the old Tepetate district, and at Los Cues, which is situated south of the Lagartero (generally credited to Topila), and north by west of the Aguada district. In the first two districts named material is being moved to locations. In Los Cues, it is rigging rotary.

Huasteca Petroleum Co.'s (Mexican Petroleum) No. 29-A Cerro Azul, is drilling in blue shale at 1,163 feet; No. 34, same, drilling in sandy shale and pyrites at 1,788 feet. In Tierra Blanca, its No. 13-A is drilling in hard gray limestone at 2,295 feet; No. 19-A, drilling in the same formation at 1,982 feet, and No. 20 drilling in brown shale at 1,810 feet. In Tres Hermanos, its No. 6 is drilling in brown shale at 2,400 feet; and its deep test at Moralillo is drilling in gray shale at 3,690 feet. In the Juan Casiano sector of the upper Chinampa, Huasteca's No. 10-A, Lot 160, is drilling in shale at 810 feet, and No. 13, Lot 157, is rigging. International Petroleum Co.'s No. 2 San Miguel is spudding, and it is moving material for Nos. 41 and 42 Toteco Cortez Oil Corp.'s No. 5, Lot 199 Amatlan, is drilling in gray shale at 400 feet. Island Oil & Transport Corp.'s No. 6, Lot 177 Amatlan, is drilling in shale at 660 feet. Mexican Gulf Oil Co.'s No. 2, Lot 185 Santiago de la Pena, is drilling in sticky shale at 3,000 feet; its No. 45 Toteco is a derrick. Penn Mex Fuel Co.'s No. 2 Palo Blanco is cleaning hole at 2,120 feet, where the drill rested in shale. Mexican Eagle Oil Co.'s No. 7 Palma Sola is drilling in brown shale at 2,223 feet; No. 8, same, drilling in pink shale at 1,092 feet. Up in the Amatlan, its No. 24 Los Naranjos is drilling in the Tamasopa at 2,230 feet in Lot 132; No. 28, Lot 125, is drilling in gray shale at 1,830 feet; No. 29, Lot 131 Chinampa, ready to spud; No. 24 Zacamixtle, Lot 198 Amatlan, drilling in gray sticky shale at 550 feet, and No. 5, Lot 163 Chinampa, running 8-inch at 1,885 feet.

Topila

In the Topila Pool operations were as follows: Credito Petroleum Co.'s No. 2, Lot 1 Paciencia de Agua., shut down for orders at 2,400 feet in the San Felipe, and No. 3, Lot 9, same sector, drilling in a similar formation at 1,936 feet. The Texas Co.'s No. 10, Lot 17 Lomas y Llanos, which is near the Paciencia de Agua. border on the west, is drilling at 210 feet in shale. La Corona Petroleum Co.'s No. 1 Tobalo is drilling in shale at 260 feet, and its No. 18 Topila is a derrick. Globe Petroleum Co.'s No. 4, Lot 174, Quebranche, is drilling in blue shale at 1,700 feet. National Oil Co.'s No. 1, Lot 173 Quebrache, has cemented 10-inch at 2,705 feet, in pink shale.

Miscellaneous Tests

Among the northern wildcats the only interesting test the past week is Woollett & Parker's No. 1, Lot 94 Caracol, which had a big gas blowout with considerable oil at 2,390 feet, and it continues making something around 200 bbls. as the drill descends at 2,420 feet. It is claimed here the top of the Tamasopa was reached at 2,260 feet. Other Caracol tests are drilling substantially as follows: Hummel & Frix's No. 3, Lot 51 Caracol, is drilling in the San Felipe around 1,600 feet. Allison Smith's No. 2, Lot 50, is drilling in gray shale at 1,225 feet.

In Los Esteros, in the State of Tamaulipas, north of Tampico, American International Fuel Co.'s No. 10 is drill- (Continued on Page 125)

Kansas Oil Field News

By Ralph T. Baker

Kansas operations showed a slight increase during the past week, and there was an undercurrent of restlessness noticeable which seemed to indicate a revival of drilling provided present conditions continued. Completions recorded during the past week were more numerous than those reported for several weeks previous. Operators were starting work on old rigs left standing for several weeks and other wells, shut down near sand levels, were being drilled again. The drilling spurt is considered temporary in nature and cannot be taken as indicative of the opinion of the more conservative operators who will continue to hold their drilling activities at a minimum until such a time as new operations are considered justifiable.

During the week ended September 29 there were 27 locations reported; 45 rigs; 50 wells drilling and 99 wells shut down, a total of 221 operations. For the week ended September 22 there were 25 locations, 42 rigs, 54 wells drilling and 95 shut down, a total of 216 operations. The increase of 5 operations shown during the week shows the improved sentiment on the part of Kansas operators regarding conditions in that State.

Renewal of operations on a large scale in Cowley County was the most outstanding feature of the week. Several good wells were completed and a few new operations were listed. Greenwood County showed several completions and considerable new work, with indications of increased activity. Wildcatters were still active in all sections of the State, with a few showings reported in some outside tests.

Cowley County

In Cowley County the Cassoday Oil Co.'s No. 3 Magnuson, CNL NW NW, Section 14-30-4, started with an output of 110 bbls. on the pump from sand at 2,767-2.803 feet. The same company's No. 4 Magnuson, CWL NW, same section, was good for 40 bbls. naturally from sand at 2,805-10 feet. Sutter, Shawver and others had a rig on the ground for No. 1 Magnuson, NW cor. NE SE, Section 15-30-4. The U. S. Texas Oil Co.'s No. 1 Gill, NE cor. NW, Section 5-30-5, was abandoned at 2,983 feet.

Scott and others abandoned the location for No. 1 Simons, SE cor. NW, Section 33-30-7. Wilson & Martin's No. 1 Eastman, SW cor. Section 5-31-6, was drilling at 350 feet. J. A. Hull and others' No. 1-A Lembrock, CEL NE NE SW, Section 24-32-4, was finished as a 100-bbl. well after a 55-quart shot in sand from 2,328-56 feet. Trees Bros. & Clark had a rig on the ground for No. 1 Brown, NE cor. SW, Section 6-32-5. The Southwestern Petroleum Co.'s No. 1 Harman, SE cor. NW, Section 16-32-6, was abandoned at 1,750 feet after losing the hole. The same company was rigging up at No. 1 Allen, SE cor. SE NE, Section 18-32-6. Smith Bros.' No. 2 Miller, CNL NE SW, Section 36-32-4, was abandoned at 1,524 feet. The Gypsy Oil Co. had timbers on the ground for No. 2 Yson, CSL SW SW, Section 11-30-4. Paul Trees staked a location for No. 2 Mahannah, NW cor. Lot 20, Section 6-30-8.

In Rice County, Younkers, Douglas and others were spudding No. 1 SE cor. NW, Section 35-20-6w.

In Lyon County, Gentles and others' No. 1 Beecher, NW cor. Section 36-21-10, was abandoned as dry at 2,648 feet after getting a hole full of water at 2,615 feet.

Wildcat Wells Dry

The Keys Petroleum Co.'s No. 1 Sheridan, SW cor. SE SW, Section 21-15-6w, Ellsworth County, Kansas, was declared dry and abandoned recently after drilling to a total depth of 4,005 feet.

In Butler County, the Oklahoma Producing & Refining Corp.'s No. 4 Maxwell, CWL NW SW, Section 31-24-4, was (Continued on Page 125).

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Lot 1, drilling at 270 feet. Credito 13-A is drilling in hard gray limestone No. 4 Magnuson, CWL NW, same sec- (Continued on Page 125).

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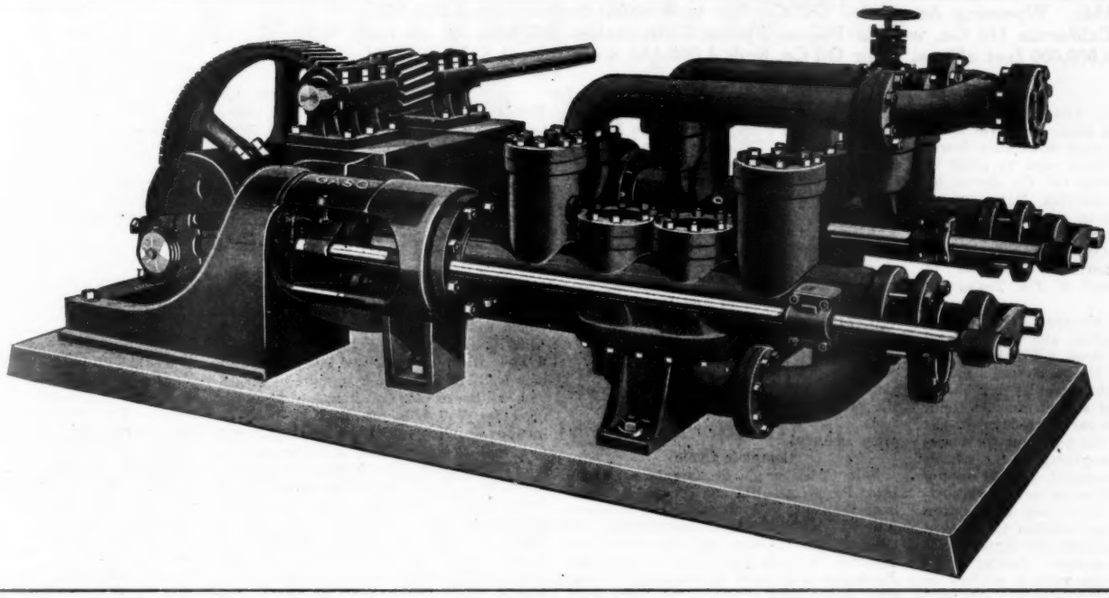

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Wyoming Field Operations

By F. B. Taylor

Midwest Co. gets 750-bbl. producer in Salt Creek and another making 450 bbls. Wyoming Associated Oil Co. has well doing better than 1,000 bbls. California Oil Co. well in Poison Spider Field makes 200 bbls. of oil and 6,000,000 feet of gas. Bair Oil Co. finds 1,000-bbl. well in Lost Soldier Field.

CASPER, Wyo., Oct. 6.—Following the floods roads are impassable over much of this region and field work shut down. One of the first scout cars to come in was that of the Ohio Oil Co. driven by Art Sellery and carrying Dan Swartz, scout for the Ohio in the Sunburt Field of Montana. Just before the flood, these two scouts of the Ohio were ordered into Colorado from northern Montana to scout the Craig well of The Texas Co. at Craig, Colo.

The drive from Montana to Craig was made without mishap and they stayed there during the flood. Two days ago they left Craig for Casper across a mountainous country and completed the trip through unheard of difficulties. At times the wheels of their car were down in the gumbo soil below the hub caps so it was impossible to see anything of the wheels except a moving segment of mud on top of the ground. Coming across the Alcova plateau, the scouts took to the open plain rather than try to follow the washed out road and wandered for many miles through the sage brush. Coming down Alcova mountain the road is washed so they coasted down the mountain side with wheels locked. They will leave Casper today for Montana although reports indicate all roads leading north are impassable. The distance from Craig, Colo. to Casper, is about 250 miles.

Word has reached Casper to warn all travelers that Birdseye Pass over the Big Horn mountains is impassable for cars, but the railroads are endeavoring to keep up some kind of service and have placed two 4-horse teams with light wagons, between Shoshoni and Thermopolis. No word has been received as to conditions in the Wind River canyon where the new road is being built to carry traffic to the Big Horn Basin from Central Wyoming, but an effort is to be made to finish the new highway so travelers can use it this winter and do away with the dangerous road over Birdseye Pass until next spring. There are four steam shovels at work on the canyon road and if the flood did not damage them, the road may be opened for light traffic in the near future.

Craig, Colorado, Operations

The Texas well at Craig, Colo., is down 2,225 feet and trying to find a shell to set the 10-inch casing on. The Frontier sands are said to lie about 4,000 feet under the surface at this location so the well is a little more than half way down. There has been swabbed from the hole about 1,000 bbls. of oil and fresh pockets of shale oil are found as the drilling continues. All the available tankage is full of oil, amounting to 1,000 bbls. The first shows of crude have been drilled through and are now behind the casing which is being lowered as the drilling continues. The well is carrying about 900 feet of oil in the hole besides what is in the tanks, this crude will be used for fuel for drilling. The present depth is 2,225 feet and the 10-inch pipe is hanging at 2,186 feet.

From all reports from the Craig district, the well is much like many other wells drilled in Colorado, the shale oil is often found there and in one place has made production enough to warrant development. This is at Florence where a number of shale wells have been producing for years and where the Standard of Indiana has built a refinery to handle the production. Another shale producing area is near Boulder and numerous showings that might develop into small production are known.

As soon as the water receded between Rawlins and the Lost Solider Field, the county commissioners of Carbon County started County Engineer Marks out on route with orders to build a highway between the Lost Soldier and Rawlins that will carry traffic at all seasons. In contrast, Natrona County, of which Casper is the county seat, and also the richest county in the State, the county commissioners have not done any road building the past year though Natrona's income from oil is far greater than that of any other county.

Complete Cycle

Salt Creek crude is now being made into Parco gasoline at Parco refinery near Rawlins. The Producers & Refiners pipe line is delivering the crude from the field to the refinery and this brand of gasoline is being marketed through the Producers & Refiners filling stations. This firm has a full cycle in the petroleum business, taking the crude from its own wells, piping it across the country in its own pipe lines, refining it in the Producers & Refiners' refineries and retailing the finished products through its own filling stations and wholesale houses. The Producers & Refiners can now deliver any kind of oil called for by the trade from high test gasoline used for cleaning, to the heavy asphalts and tars made into pavements and paints.

The Hatfield well drilling south of Rawlins in Carbon County is now drilling about 3,600 feet in shale. The sands are expected here about 3,900 to 4,000 feet and the tools are making about 50 feet daily. The hole is now in the 8¼ and the 6¼ will be set if water is found. This well is being drilled by the Hatfield Oil Co. composed mainly of local capital.

The Union Oil Co. of California, drilled in a gas well on Section 32-35-65 in the Lance Creek Field, Niobrara County. This well appears as large as the other big gassers found in this field and blew the tools out when the sand was reached. A proposition is being promoted to make use of the gas at Lance Creek in a carbon black plant and electric power plant.

The Hope Engineering Co. has about reached the Poison Spider Field with the Boone Dome pipe line that will carry gas from the Boone Dome wells to the New York Oil Co.'s pipe line at Poison Spider. This line will furnish an abundance of gas for Casper the coming winter.

The Bair Oil Co. drilled a good producer on Section 3-26-90 in the Lost Soldier Field. The well started off at better than 1,000 bbls. and is holding up at that figure. The location is an offset to the Hughes well that same in about a month ago and made a large production.

About 32 drillers and helpers reached Casper from Louisiana the past week to operate the rotary outfits being moved into Wyoming by J. M. Curtis. The men were held in Casper for several days on account of flood conditions.

Only two active wildcats are reported from Fremont County the past week. The Marine Oil Co. on the Sheldon Dome has reached 2,070 feet and the first Wall Creek sand is expected within the next 200 feet. This is the second well to be drilled on this structure, the first finding oil and then water in the second Wall Creek sand and it is thought the present test of the Marine is located away from the faults so it has a good chance of finding a commercial well. The Kinney-Coastal well drilling near Black Mountain, about 10 miles from the Sheldon Dome well of the Marine, is down about 1,000 feet and making hole.

The Midwest interests completed five new wells in Salt Creek in spite of floods. The Midwest Oil Co. found a producer good for 750 bbls. on Section 14-40-79 in the second Wall Creek sand at 2,057 feet and the same firm also brought in a producer good for 450 bbls. on Section 27-40-79 at 1,625 feet in the second Wall Creek sand. The Wyoming Associated Oil Co. found a good well that will do about 50 bbls. on Section 35-40-79 at 1,344 feet in the first Wall Creek and the same firm has a good producer in the second Wall Creek sand at 2,193 feet on the adjoining Section 34-40-79. The Wyoming Associated also has a well doing better than 1,000 bbls. at 1,524 feet in the second Wall Creek sand on Section 24-40-79.

The California Oil Co. drilled in a good producer in the Sundance sand at 1,860 feet in the Poison Spider Field, Natrona County. This well is located on Section 18-35-82 and is making around 200 bbls. black oil and about 6,000,000 feet of gas. The well was being cemented and when the drillers started to cut out the cement, the well commenced flowing.

The Fremont Natural Gas Co., a subsidiary of the Producers & Refiners that distributes the gas production of the Sand Draw Field to the towns of Riverton, Hudson and Lander, has announced a reduction in the price of gas to quantity users. This new rate calls for a payment of 50 cents for the first thousand feet up to 75,000 feet, then 45 cents up to 150,000 feet, 40 cents up to 300,000 feet and 35 cent sup to 475,000 feet.

The Producers and Refiners is also laying a pipe line from the Casper station on the trunk line from Salt Creek to Parco, to the new refinery site of the White Eagle refinery at Casper. This line will supply the White Eagle with crude for its operations.

Pipe Line Runs

Pipe line runs for the week were reduced materially by the flood conditions and show a decided drop under the totals of the previous week.

Salt Creek	99,000
Teapot	4,200
Big Muddy	4,250
Lance Creek	460
Pilot Butte	90
Lander	385
Lost Soldier	4,300
Rock River	3,075
Grass Creek	4,855
Hamilton Dome	800
Elk Basin	1,910
Notches	415
Greybull	180
Osage	945
Ferris	120
Cat Creek	5,300
Sunburst	3,500
Miscellaneous	675
Total	135,560

The Ohio Oil Co. drilling on Section 22-16-104 is starting to drill again after waiting for cement to set for the past week. The hole is now 2,420 feet and the cement job seems to be tight. The Associated Oil Co., drilling in conjunction with the Montacal Oil Co., pulled a bailer out of the hole that was lost about a week ago and has held up the work and this well is drilling again and the Midwest on Section 10-16-104 is drilling at 2,112 feet. The same firm is trying to sidetrack some lost pipe on Section 11-16-104 at 2,600 feet and the work on this latter well appears to be doing fairly well with a prospect of getting the drill at work in another day or two.

The Mutual Oil Co.'s refinery at Cowley, Wyo., has been shut down for the winter. This plant has been running on crude from the Cat Creek Field in Montana and owing to high freight rates, lower markets for the crude and other similar causes, the Mutual has decided to close the plant for the present. Superintendent D. D. Gibson has resigned and will enter another branch of the service and his place will be taken by J. H. David for the present.

West Kentucky—Tennessee

By Vern T. Whitney

BOWLING GREEN, Ky., Oct. 8.—Present indications point to an increasing activity in the western Kentucky fields.

The possibilities of the Warren County shallow sand, in the Mississippian series, have been further shown this week by the completion on the Dr. Francis 400 acres, of well No. 1 by G. C. Foster and associates of Dayton, Ohio. This property is near Greencastle, on the north side of the Barren River, and across from the Sandidge-Shields-Biddle Pool, and now shows this pool to be over 1½ miles wide, without a miss. The staying quality of the wells in this district has been recognized, although they are above the black shale.

This well showed 18 feet of good sand, from 530 to 548 feet and flowed by heads after a 60-quart shot. It is estimated all the way from 40 to 100 bbls. No. 2 Dr. Francis is spudding. In this district, Makeever Bros. are moving a machine to No. 3 location on the Young farm, while the Cadet Oil & Gas Co. is preparing to start Nos. 21 and 22 on the Biddle farm. One mile east of the Sandidge, G. W. Pyle is drilling on the Watkins farm.

Owensboro Field News

Damron Bros. in their No. 2 on the Miller lease, southwest of Pellville, furnished the only completion of the week in the Daviess, Hancock-Ohio County Field. The well which finished up at 474 feet in the Jett formation, showed 42 feet of sand about 16 feet of which was pay. It is estimated at 4 bbls. No. 1 on this farm is pumping 15 bbls. from the Barlow sand.

Although there are half a dozen wells drilling in the Pellville section and to the southeast, none were near completion but may be on the list within 10 days. C. E. Daugherty, on the Virgil Miller farm, was spudding Saturday in the first test offsetting the Damron Bros. well, a few locations south. The Leeper Oil Co. on the Howe farm is down about 400 feet and will encounter the shallow pay early in the week. Should this fail to show oil it will be drilled to the deeper formation.

The Newman Oil Co. has contracted

(Continued on page 104)

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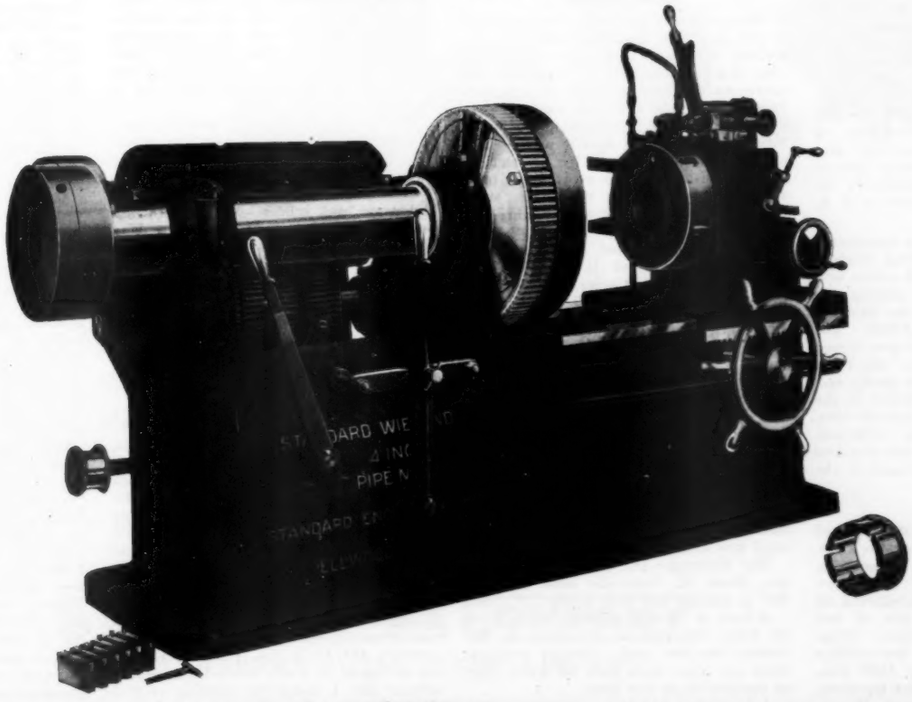

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velopment. This is at Florence where a number of shale wells have been pro-

Only two active wildcats are reported from Fremont County the past week.

is preparing to start Nos. 21 and 22 on the Biddle farm. One mile east of the

The Newman Oil Co. has contracted

(Continued on page 104)

North-Central Texas Field

By Dan F. Dugan

Miller Brothers' No. 1 Boyett, Stephens County, makes 320 bbls. Staley & Wynne's No. 2 Mrs. Carter, Archer County, 360 bbls.; Bridwell & Heydrick's No. 1 Carter Brothers, 315; No. 5 Mrs. Carter, swabbing 600; Sunshine State's No. 6 Carter, 450; Hawkins and others' No. 1 Carter, 310.

FORT WORTH, Texas, Oct. 8.—Another downward trend in production runs was reported from the North Central Texas Field fon the week in review. All of the various pools reported small losses with the total number of barrels for the week amounting to 111,855, a decrease from the previous week of 1,835 bbls. daily. Development activity throughout the entire field is gradually slowing up as the weeks go by with the possible exception of Archer County, which continues to report a considerable number of completions each week with practically as many new derricks in the course of construction and as many new locations reported as there was during its peak days of early last spring. Dollar oil in this field has practically shoved the industry back to a pre-war basis. Each successive cut in the posted price during the past half year has been greeted with the optimistic comment that "she's touched bottom now." It may be that such a statement is really an accurate estimate of the situation this time; evidence of this lies in the fact that there is a market, such as it is, for all the crude that is produced in this field, and the operator who thinks he can sell at a profit at existing prices can dispose of his production.

The oil and gas division of the Railroad Commission has made a district office designated as No. 6 out of the Wichita Falls office. The counties embraced include Wise, Montague and Jack to the east and south, and all the counties north of Young, with the entire Panhandle section. The creation of this new district means additional work for the Wichita Falls office as heretofore all reports made by the deputies were sent to the office of the commission at Austin. All future reports from deputies in the new district will be made direct to T. L. Coplin at Wichita Falls.

A lease sale of considerable importance was made in the new Clara Pool, Wichita County, L. P. Hammond and others selling 40 acres and one well making 420 bbls. daily at the time of the sale for around $200,000 to John O'Neil. The sale is the first for the new pool which has been rapidly coming to the front since its discovery just a few weeks ago. This well was the second drilled in the new pool, and was credited with 450 bbls. initial production from the 1,830-foot sand from which production was obtained in the Hirschi Pool, a sister pool in the Burkburnett district.

Stephens County

Interest in Stephens County centered on the Humble Oil & Refining Co.'s No. 2 Caton, which is reported as showing around 2,000 bbls. daily at 3,265 feet. This well, which has been producing on the pump for some time has of late shown a very small production. When the well was brought in a few months ago it had an initial flow of 4,000 bbls. and created a sensation in that territory. It is also an offset to the famous Pender Oil Co.'s well, which came in a few months ago showing 3,000 bbls. daily, but later suddenly shut itself off and has not produced a barrel of oil since.

The largest producer completed in the county during the week is the Miller Bros.' No. 1 Boyett, which is showing initial 320 bbls. daily from the deep black lime at 3,640 feet.

Young County

The Texas-Eureka Oil Co.'s No. 1 Harrel north of South Bend was given a shot of 180 quarts at 4,000 to 4,060 feet and responded by making several oil flows and 5,000,000 feet of gas; it then formed a bridge. Preparations are being made to clean it out.

The only producer reported is the Shamrock Oil Co.'s No. 2 Bower, which is showing 30 bbls. at 1,555 feet.

Shackelford County

Interest in this county is centered on the Humble Oil & Refining Co.'s No. 1 Poindexter, which has reached a depth of 2,010 feet, and was shut down for the casing crew so as to be ready to set the casing and complete the well, provided they find the pay, at around 2,100 feet. This is the second test of the Humble Oil Co. in that territory following the bringing in of No. 1 Parish six weeks ago, with a flush production of around 350 bbls. It was a rank wildcat and was completed at 2,080 feet. This second Humble test, No. 1 Poindexter is situated on the same structure about 1½ miles southwest of No. 1 Parrish, the discovery well, and if as successful will at once open up a big territory for development.

Archer County

This section of the North Central Field is the only one that has failed to materially respond to the prorating and shut down orders. To the contrary, the operators continue to bring in new producers daily, and the past week was no exception. Several wells were completed ranging from small 40-bbl. pumpers to others with 300 bbls. daily production. In the Sunshine Pool a great many tests are drilling and each day finds other tests rigging up on the surrounding territory.

The largest reported producing completion for the week is the Staley & Wynne No. 2 Mrs. Carter, which flowed initial 340 bbls. at 1,585 feet. Eight other producers were completed showing from 40 to 300 bbls. Only two dry holes were reported. Near completions report an exceedingly large flush flow. Bridwell & Heydrick's No. 5 Mrs. Carter is swabbing 600 bbls. at 1,585 feet. Maer and others' No. 5 Mrs. Carter, 185 bbls. at 1,580 feet; Sunshine State Oil & Refining Co.'s No. 6 Carter, 450 bbls. at 1,583 feet; Staley & Wynne No. 2 Carter 360 bbls. at 1,580 feet and several other tests showing for a splendid initial production that were shut in when the pay sand was drilled.

The Kentucky Oil Corp.'s No. 1 Wilson, Block 23, from the sand at 1,378 feet is making 100 bbls. a day.

A total of 19 new locations was reported from the various oil pools in the county for the week. Scouts estimate there are more than than 50 wells right at completion in this field.

A test being watched with considerable interest is the Maer-Staniforth No. 1 Netherton, about one-half mile west of the Sunshine Pool. This test has set casing on top of a sand at 1,390 feet and will bail the latter part of the week. The well is west of the Hester-Hawkins wells and the Guynn producers in Block 93.

The Texas Co.'s No. 4 Carter Bros. pumped in 12 hours 135 bbls. at 1,575 feet through a 2-inch tubing.

Wichita-Electra

A 55,000-bbl. crude oil tank owned by the Waggoner Refining Co. was struck by lightning. The tank was filled with oil and the loss will exceed $100,000.

At present one of the most active spots in Wichita County is the shallow fields to the south and west of Iowa Park, where several tests are drilling.

During the week a few wells were finished, the majority showing small production, with the exception of the Texhoma Co.'s No. 9-F Waggoner, south Electra, which swabbed 187 bbls. from the 1,900-foot pay, making it the best well from that part of the field.

The Texas Co.'s No. 282 and 284 Waggoner are showing around 150 bbls. each, No. 282 at 1,935 feet and No. 284 at 1,565 feet.

Burkburnett-Hirschi

With its third well completed for 300 bbls. the new pool north of Clara is assuming some importance and promising to furnish the high light of Wichita County development for 1923. The new well is the Langford and others No. 7 Langford, several locations east of the other producers. It is producing from the same 1,830-foot sand found in the Hirschi and other pools in that section. The Hirschi Pool was the outstanding development in Wichita County for 1922, and is responsible for holding the production of the Burkburnett district up to normal.

Three miles south of Clara in semi-wildcat territory, the Cooper and others No. 1 Hines is drilling at 1,890 feet after having two shows of oil.

Casing is being set at 1,940 feet in the Robinson and others' No. 1 McCaleb, north of Vernon, near Doans in Wilbarger County. This well is in what is considered very promising territory.

Completions Reported

Completions reported in the Burkburnett and Hirschi Pools are Magnolia Petroleum Co.'s No. 95 Reilly, 3 bbls. at 725 feet; Sun Oil Co.'s No. 21 Hirschi, 25 bbls. at 1,885 feet; Robinson Oil Co.'s No. 5 Roller, 35 bbls. at 1,155 feet.

Drilling: Coleman Drilling Co.'s No. 1 Hewitt, drilling in blue shale at 1,070 feet; Gulf Production Co.'s No. 12 Dale, standardizing at 1,880 feet; Lewis & King's No. 2 George, drilling in rock without any showing at 2,510 feet; McNabb and others' No. 2 Potter, drilling at 1,140 feet; No. 2 Saunders, at 105 feet; Magnolia Petroleum Co.'s No. 98 Reilly, running 8¼-inch casing, depth 1,565 feet; No. 99 Reilly, drilling underreaming lugs at 1,455 feet; No. 6 Holtzen, cleaning out after a shot on top of an oil sand at 1,832 feet; Northwestern Oil Co.'s No. 1 Eads, rigging up to ream at 1,472 feet; Perkins and others' No. 1 Saunders, drilling at 805 feet; Robinson Oil Co.'s No. 6 Roller, at 935 feet; The Texas Co.'s No. 1 Potter, underreaming at 1,925 feet; total depth, 2,000 feet.

Completions: The Texas Co.'s No. 282 Waggoner, 130 bbls. at 1,938 feet; same company's No. 284 Waggoner, 150 bbls. at 1,580 feet; Solly and others' No. 1 Douglas, dry at 1,077 feet; same company's No. 2 Douglas, dry at 1,095 feet; Texhoma Oil & Refining Co.'s No. 9-F Waggoner, 187 bbls. at 1,920 feet.

Drilling: Apperson and others' No. 1 Ancell, fishing for underreaming lug at 895 feet; Holcomb and others' No. 1 Zeiset, drilling in blue shale at 1,240 feet; Magnolia Petroleum Co.'s No. 1 Tuttle, drilling without any showing at 2,025 feet; Mansfield 2nd and others' No. 2 Jennings, shut down for orders on top of an oil sand at 828 feet; United Production Co.'s No. 3 Jennings, water sand at 1,979 feet and shut down for orders; Knight and others No. 1 Fasset, drilling at 1,200 feet; Magnolia Petroleum Co.'s No. 26-A Waggoner, at 945 feet; No. 1-C Waggoner, sand at 1,740 feet that pumped 60 bbls. first 13 hours; Noel and others' No. 1 Waggoner, fishing for tools at 1,950 feet; John O'Neil's No. 11 Waggoner, drilling at 1,325 feet; Peterson and others' No. 1 Throckmorton, water sand at 1,950 feet, shut down for orders; Ryan Petroleum Co.'s No. 11 Nance, drilling at 1,020 feet; Texhoma Oil & Refining Co.'s No. 3-A Burnett, at 1,395 feet; No. 2-B Burnett, at 865 feet; No. 1-H Waggoner, at 1,970 feet; Stodham's No. 2 Daume, at 980 feet.

Wilbarger County

Drilling: Byrne and others' No. 1 Corder, drilling in blue shale at 1,830 feet; Electra Gulf Oil Co.'s No. 1 King, drilling in rock at 1,995 feet; Hobbs Brothers' No. 17 Yarborough, drilling at 495 feet; Noble Oil Co.'s No. 1 Waggoner, at 730 feet; Pigg and others' No. 1 Forrester, at 1,880 feet; South Vernon Oil Co.'s No. 1 Stephenson, cleaning out at 1,280 feet; Mike Sullivan's No. 1 Waggoner, trying to pull 6⅝-inch casing to abandon at 2,005 feet; Wirt Franklin's No. 1-A Womack, reaming to bottom at 2,042 feet.

Archer County

Completions: Bridwell & Heydrick's No. 1 Carter Brothers, 315 bbls. at 1,585 feet; Chenault and others' No. 2 Wilson, 175 bbls. at 1,595 feet; Dale and others' No. 2 Wilmot, 290 bbls. at 1,600 feet; Dixon and others' No. 1 Wilson, dry at 1,635 feet; Hardly Able Oil Co.'s No. 1 Richardson, 50 bbls. at 1,355 feet; Hawkins and others' No. 1 Carter Brothers, 310 bbls. at 1,575 feet; Henley and others No. 2-B Wilson, dry at 1,805 feet; Payne and others' No. 1 Wilmot, 40 bbls. at 1,600 feet; Sibley and others' No. 4 Wilmot, 160 bbls. at 1,590 feet; Staley & Wynne's No. 2 Mrs. Carter, 340 bbls. at 1,585 feet; Swastika Oil Co.'s N. 8 Richardson, 98 bbls. at 1,345 feet; The Texas Co.'s No. 4 Carter Brothers, 270 bbls. at 1,575 feet.

Drilling: Barkley and others' No. 1 Wilson, drilling at 1,440 feet; Barnes and others' No. 1 Wilson, at 1,555 feet; Bell and others' No. 1 Wilson, testing an oil sand at 1,590 feet; No. 2-A Wilson, testing an oil sand at 1,590 feet; No. 2-A Wilson, drilling at 605 feet; Boehler and others' No. 1 Wilmot, rat-holing at 1,350 feet; Bridwell & Heydrick's No. 2 Carter Brothers, drilling at 1,025 feet; Burns and others' No. 1 Parrish, at 805 feet; Carter and others' No. 2 Ferguson, cleaning out on top of an oil sand at 1,760 feet; Chenault and others' No. 2-C Wilson, testing an oil sand at 1,585 feet; No. 3-C Wilson, drilling at 1,550 feet; Clayton and others' No. 2-B Richardson, drilling in an oil sand at 1,365 feet; Dilday and others' No. 1 Ferguson, drilling out a plug at 1,758 feet; Empire Gas & Fuel Co.'s No. 1 Wilson, drilling in blue shale at 1,450 feet; Featherstone and others' No. 1-B Wilson, standardizing on top of an oil sand at 1,573 feet; Gatewood and others' No. 1 Boone, drilling at 1,745 feet; Gwynn and others' No. 2 Carter, rigging to pump and test a sand at 1,580 feet; Hawkins and others' No. 2 Carter, drilling at 650 feet; Hudspeth and others' No. 1 Black, at 1,475 feet; Humble Oil & Refining Co.'s No. 1 Netherton, at 205 feet; Jetter and others' No. 1 Wilson, taking a core at 1,409 feet; Lane and others' No. 1 Parrish, cleaning out with

(Continued on Page 70)

STEEL SUPERIOR DERRICK

SUPERIOR Light Pumping Derricks have a most unique joint in which the girt is connected to the leg by means of two ¾-inch stud bolts. These stud bolts are permanently set in the sleeve connections and extend through the wall of the reinforcing plug which, in addition to strengthening the joint, furnishes an accurate seat and insi le reinforcement for the end of each tubular leg section. Note also the 14-foot opening at the front of the derrick to facilitate the handling of rods.

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Purification of Oils by Centrifugation

Application of Centrifugal Machines in Separating the Liquids in Petroleum Industry Set Forth in Three Papers

By A. F. Meston, New York, N. Y.

Centrifugal force has been used for centuries for separating liquids but machines for doing this are a comparatively recent development. The use of these machines is being extended into many industries but this paper is confined to their use in the oil industry. The centrifugal machine is found at the well where "cut oil" is dehydrated for acceptance by pipe lines; and in the refinery and by-product plant. In fact, wherever finely divided suspended particles should be removed from an oil, there is a possible use for a centrifugal machine, if the particles have, or can be made to have, a specific gravity different than that of the oil. Centrifugal machines are also used for cleaning fuel and lubricating oils and dehydrating transformer oils.

Application and Results

When oil comes from the well mixed with water, it is spoken of as cut oil. Settling often does not remove sufficient water for the oil to be accepted by pipe lines, thus necessitating chemical or other treatment. Centrifuging alone, or following chemical treatment, effectively prepares such oil for pipe lines, as is shown by the following data:

Oklahoma lease—Temperature, degrees F., 160; oil to pipe line, bbls. per hour, 10; water, etc., at start, per cent, 10; water, etc, at finish, per cent, 0.25.

Kansas lease—Temperature, degrees F., 125; oil to pipe line, bbls. per hour, 4; water, etc., at start, per cent, 20; water, etc., at finish, per cent 2.25 to 2.

On the Oklahoma lease, the machine was cleaned of solid material once in 12 hours. At first, it was thought that chemical treatment was necessary to start separation and 1 quart of prepared compound was added to each 100 bbls. of the cut oil before centrifuging. Later it was found that if the oil settled somewhat before centrifuging, chemical treatment was unnecessary; heat and settling alone would not break the emulsion satisfactorily. On the Kansas lease, the oil was of 22° Be. with very small gasoline content.

The installations should be protected whenever possible because heat exchangers can be more conveniently used with them; heat exchangers save heat and furnish a means of quickly heating and quickly cooling the oil—an essential factor in minimizing gasoline losses, which is of great importance when crude oil is purchased on a preferential basis. By their use, the uncleaned oil going to the machines receives much of the heat necessary for effective separation from the purified oil that is leaving the machine.

Oil From Storage and Tank Bottoms

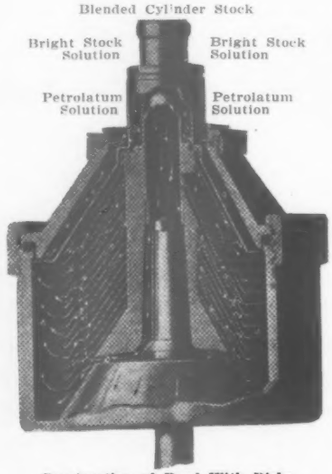
Oil from storage tanks is cleaned in much the same way as cut oil. The oil is heated, sometimes given a preliminary chemical treatment, and passed through the centrifuge. Heavy oils are harder to run than light oils and higher temperatures are required. The amount of contamination and the extent to which they are emulsified largely determine the rate at which they can be cleaned. The following results were secured on 16° Be. Texas coastal crude taken from storage; one of the tanks ran as low as 14° Be., necessitating the higher temperature indicated. Chemical treatment, using about one-fourth as much chemical as was used for gravity settling, was found helpful.

Oil from earthen storage, Texas coastal, 14°-16° Be.:

Temperature, degrees F., 180-200; to centrifugal, bbls. per hour, 5-8; bottom settlings, plus water content, ingoing, per cent, 10 (aver.); outgoing, per cent, 0.25-3.0.

At the refinery, crude petroleum is stilled and the products are chemically treated, filtered, blended and compounded. When refineries were supplied with high-grade Pennsylvania crude, they had no great difficulty turning out high-grade products. Today the refineries are handling many different crudes, so chemical and special treatments are required if the finished products are to meet the exacting specifications. Experimental work defines the processes, which are then carried along on a large scale under careful control and supervision.

Centrifugal machines are well adapted to processes requiring careful control



Construction of Bowl With Disks

and are used extensively in experimental work and when special products are made. Extensive tests have shown that much is to be gained by complete dehydration of some crudes previous to their stilling, as much of the magnesium salts and other detrimental substances can be so removed. One refiner finds it advisable to put all his transformer oil through centrifugal dehydrators previous to shipping.

Manufacture of Bright Stock

Centrifugal machines furnish the most effective means for economically producing low-pour bright stock. Bright stock is the product obtained by filtering cylinder stock (the still residue, with 600° F. fire test, from a paraffin-base crude) and then removing the amorphous waxes. These waxes (petrolatum) separate out and congeal, when left in the filtered oil, at comparatively high temperatures and prevent the oil from flowing or pouring. It has been the practice to remove the petrolatum by cold (gravity) settling, but centrifugal machines are now being used because of the more complete separation that can be obtained.

Cylinder stock from Pennsylvania crude, blended with naphtha, filtered and chilled to below 15° F. can be centrifuged at a rate of 200 to 300 gallons of blended oil per hour per machine. The bright stock in solution with naphtha flows from one spout of the machine and comprises 85 to 92 per cent of the ingoing solution. The remainder of the solution sludges out of another spout—when a low-bowl centrifuge is used, and consists of the amorphous waxes and naphtha. When the long-bowl type of centriguge is used, the waxes pass out with a liquid (brine or hot water) carrier.

The oil or bright stock, after the naphtha is driven off, will have a pouring temperature of 20° to 30° F. The reduced waxes or petrolatum will have a melting point of 125° to 140° F.

A body in motion moves in a straight line when not influenced by other forces. When a body, or particle, is made to move in a curved path, the reaction of the body, or particles, against the force that causes it to move in this path is called centrifugal force. It is equal to the restraining force but opposite in direction.

If the particle moves with uniform speed about the center of rotation, the centrifugal force

$$F = \frac{MV^2}{R} \qquad (1)$$

in which M=mass of moving particle;
V=speed of moving particle;
R=radius of circle

$$M \text{ (in poundals)} = \frac{W}{32.17}$$

where W=mass, in pounds.

$$V \text{ (in feet per second)} = \frac{2\,\pi\,RN}{60}$$

where R=radius, in feet;
N=number revolutions minute.

Substituting in (1)

$$F = \frac{W}{32.17} \times \left(\frac{2\,\pi\,RN}{60}\right)^2 \div R$$

$$F = \frac{WRN^2}{2933} \qquad (2)$$

The pull of the earth on a mass of 1 lb. is a force of 1 lb.; centrifugal force acting on a rotating mass of 1 lb. exerts a pull of $\frac{RN^2}{2933}$ lb. Using this last expression, the centrifugal exerted force by any machine can be compared directly with the force of gravity.

In machines using centrifugal force to separate materials of different specific gravities, the force available to produce separation depends on the difference in specific gravity of the two materials. (The values in the formula just given were based on the weight of a body in air.) If a particle is suspended in a liquid which weighs, in air, half as much per unit volume as does the particle, the effective pull a centrifugal machine will exert on the particle in one-half of what it would have been had it been suspended in air; if the liquid weighs three-fourths as much, the effective pull is only one-fourth as great. The effective force on a particle suspended in a liquid is, therefore,

$$F' = \frac{W\left(1 - \frac{S_1}{S_2}\right)RN^2}{2933}$$

where F' = effective force, in pounds;
W = weight of particle in air, in pounds;
S_1 = specific gravity of liquid;
S_2 = specific gravity of particle.

If S_1 is greater than S_2, the force is negative; that is, the particle tends to move inwardly toward its center of rotation.

Centrifugal Machines

The effectiveness with which a centrifugal machine removes suspended particles from liquids depends on the magnitude of the centrifugal force it exerts, the length of time the force acts upon the particles, and the distance the particles must move through the liquid before separation is accomplished. Very small particles suspended in a liquid and acted upon by a constant force, settle at a more or less constant rate. Starting from rest, a small particle cannot obtain any appreciable velocity before the resistance set up by the liquid equals the force causing the acceleration and a constant rate of settling results; therefore, the time necessary for separation is directly proportional to the thickness of liquid to be transversed by the particles, assuming that the force acting remains constant.

Almost as important as the removal of the particles, is the prevention of their re-entering the purified liquid. Eddy currents must not exist and the incoming unprocessed liquid must not come in contact with the outgoing purified liquid; and in the passages where the separation takes place, the particles or droplets must be compelled to coalesce upon and move along one side of a passage, only, while the main body of liquid from which they are being separated keeps to the other side of the passage as it moves in the opposite direction. Fig. 1 illustrates how inclined conical disks are used to divide the mixture to be separated into thin layers and how they permit a realization of the other conditions mentioned. A centrifugal machine equipped with a bowl constructed as shown will be very effective even at moderately high speed.

The centrifugal machines used for dehydrating and purifying oils are intended for processes requiring more or less continuous operation. They will continuously sludge out most of the impurities that oils contain, but where sand

BASIC PRINCIPLES EXPLAINED

Three papers dealing with the use of centrifugal machines in the petroleum industry were read at the meetings of the American Institute of Mining and Metallurgical Engineers held in Tulsa in connection with the International Petroleum Exposition and Congress, October 8-14.

A. F. Meston, New York, discussed the application of centrifugal machines in separating and purifying liquids, referring especially to the petroleum industry. Basic principles underlying centrifugal force and high speed centrifugal machines are set forth and collodial suspensions and emulsions discussed.

Leo D. Jones of Philadelphia, Pa., describes early methods of centrifugal application, the invention of the solid discharge, the development of the top feed, the effects of chilling aid dilution, and the application of these methods to oils.

Eugene E. Ayres of Philadelphia, Pa., explains the principles involved in the industrial resolution of emulsions in centrifugation.

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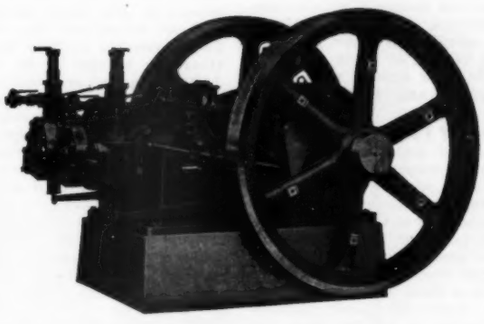
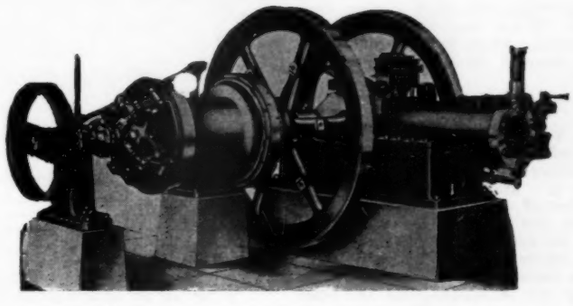
"22 'WESTERN' Gas Engines on Our Lease ---Are Giving Wonderful Service"

This is an excerpt from a letter of an operator in an important oil field telling frankly why he likes "Western" gas engines:

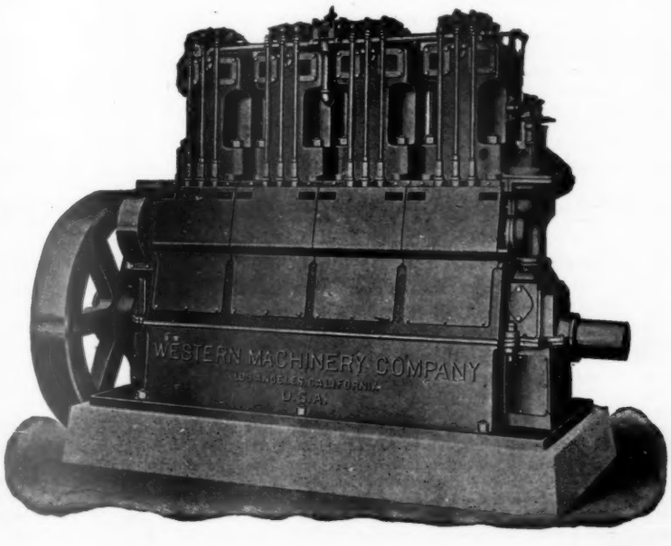
"I am glad to state that we have 22 "Western" gas engines on our lease and they are giving us wonderful service. We use them to pump the wells, pull rods and tubing, clean out and redrill. They have lots of power and are not complicated and I think they are the quickest and snappiest on the market."





Performance Makes "Westerns" Popular

We can supply on request detailed charts showing the operating efficiency of "Westerns" for purposes of comparison with other power equipment.



On the basis of such figures of proven performance many companies are standardizing on "Westerns." A single "Western" often has changed the entire power policy of a large company.

"Western" Gas Engines—Duplex or Twin Duplex, 80 to 320 H. P.

"Western" Oil Field Engines—Single cylinder, 25 to 40 H.P.

"Western" Diesel Engines—25 to 150 H.P.—1 to 6 cylinders.

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and similar substances are met, some of the heavy material is retained in the bowls of the machines and periodical cleaning is required.

One type of machine in common use rotates at 6,000 revolutions per minute; another at 17,000 revolutions per minute. Such speeds are above the critical speeds of the machines; that is, at these high speeds the revolving bowl and spindle do not revolve around their geometrical axis but around an axis that goes through their center of mass. One type of machine, which supports the bowl from below, permits this change of axis to take place by providing a flexible guide bushing for the spindle just under the bowl. There is no bearing or guide above the bowl. In the other type of machine the bowl is suspended and rotated by a flexible spindle.

Suspension of Particles in Liquids

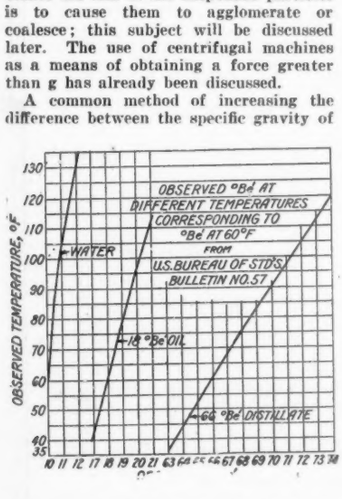
Finely divided and highly dispersed particles stay in suspension because they are of the same specific gravity as the liquid (which is not common) or because the liquid is so viscous that precipitation cannot take place, or because the particles are so small that molecular bombardment and electrical forces have a greater effect on them than does the force of gravity.[1] Extremely small particles may never settle by gravity alone but most particles will settle if given time enough. Stokes[2] has offered the following formula, which has been quite generally accepted, for computing the rate of fall:

$$V = \frac{2r^2(S-S')g}{9n}$$

where V = constant rate of fall; r = radius of particle; S = specific gravity of particle; S' = specific gravity of liquid; g = graviational constant; n = coefficient of viscosity of liquid.

From this formula, the rate V at which the particles will fall through the liquid can be increased if r or (S — S') can be increased, or if a greater force than g can be applied. On the other hand, a decrease in the viscosity n will aid settling. The obvious way to increase the size of the suspended particles is to cause them to agglomerate or coalesce; this subject will be discussed later. The use of centrifugal machines as a means of obtaining a force greater than g has already been discussed.

A common method of increasing the difference between the specific gravity of



the particles and of the liquid is to change the temperature of the mixture, especially when the particles are droplets of water or oil in water and oil emulsions. Fig. 2 shows the weight, in terms of degrees Baume, of water and the weight of typical oils at different temperatures as compared with the weight of water at 60° F.[3] A rise in temperature decreases the weight of a unit volume of the oil more rapidly than that of water (because its mean coefficient of thermal expansion is greater) and makes separation and settling easier to accomplish.

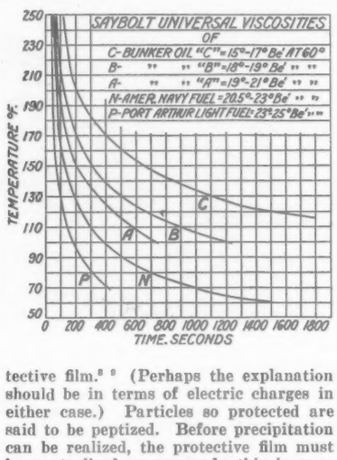
Chemicals are sometimes used to change the specific gravity of liquids. Common salt added to water makes a solution heavier than water and will aid in removing particles that are about the same specific gravity as water. Naphtha is added to oils to get liquids of lower specific gravity than the undiluted oils.

To decrease n, that is to make the liquid less viscous, the liquid can be heated. Fig. 3 shows the variation of viscosity with temperature in the case of a number of oils. A solvent may be added to decrease the viscosity; naphtha is added to oils, turpentine to paints, and alcohol to gums.

Sols, Gels and Emulsions

A sol is a suspension of extremely finely divided particles in a liquid.[4] The particles may be so small that the molecules of the liquid, darting back and forth because of their kinetic energy, keep the particles moving and they do not settle. The movements of these small particles (they are brought to be 1u, which is 0.000001 meter, or less, in diameter[5]) caused by the molecular bombardment are called "Brownian movements."[6] Particles less than 0.5u are kept moving so vigorously that they never settle by gravity, so they must be agglomerated before they can be removed by gravity settling or, if extremely small, by centrifugation. The agglomeration is called a gel.[7]

Small particles in suspension do not coalesce and agglomerate because each one has absorbed on, or in, its surface either an electric charge or some pro-


SAYBOLT UNIVERSAL VISCOSITIES
OF
C-BUNKER OIL "C"= 15°-17° Bé AT 60°
B- " " "B"=18°-19° Bé " "
A- " " "A"=19°-21° Bé " "
N-AMER. NAVY FUEL=20.5°-23° Bé " "
P-PORT ARTHUR LIGHT FUEL=23°-25° Bé " "
TEMPERATURE °F
TIME. SECONDS

tective film.[8 9] (Perhaps the explanation should be in terms of electric charges in either case.) Particles so protected are said to be peptized. Before precipitation can be realized, the protective film must be neutralized or removed; this is commonly done by adding chemicals— electrolytes.[10] Heating too near the boiling point of the liquid may do it; a strong electric field, as in the Cottrell-Wright-Speed process,[11] effectively breaks down the films in some emulsions.

Agglomeration may be brought about by filtering the liquid. In refinery practice, there is an interesting illustration of peptizing substances preventing particles from agglomerating; and the removal of these substances by filtering through fuller's earth results in the subsequent formation of a gel. The residual obtained by running down paraffine-base crude in a fire and steam still until it gives a 600° F. fire test, contains the amorphous waxes known as petrolatum. It also contains impurities, seemingly black in color, which are called asphalt or tar bodies. This heavy lubricating oil left in the still with the petrolatum and the impurities in it, will flow, or pour, until it is cooled down to 50° or 40° F.; but after the impurities are filtered out, the waxy particles that make up the petrolatum agglomerate so readily that they prevent the oil from pouring below 85°, sometimes 100° F., and necessitates the removal of the petrolatum before the oil can be used as bright stock. Of course, the tar bodies may have something to do with the solubility of the waxes. It is not claimed, however, that the phenomena are totally explained in this simple fashion.

The term gel[12] is broadly applied to all precipitated sols or colloids. It is applied to flocculent and crystalline precipitates as well as gelatinous agglomerates.

An emulsion is a mixture of immiscible, or but slightly miscible, liquids.[13] One of the liquids in continuous and is known as the external or dispersing phase; the other (or others) is suspended in the first liquid in very fine droplets, and is known as the internal or dispersed phase. Usually water is the dispersed phase in a water-and-oil emulsion but sometimes it is the continuous phase and the oil is in droplets. The fine droplets of an emulsion are prevented from coalescing by protecting films,[14] similar to the films on the particles of a sol. The film-forming substance that gets into the interface between the water and oil is called an interfacial or emulsifying agent. Soaps, tars, finely divided solids, and probably electric charges,[15] merely, act as emulsifying agents. An emulsion in which finely divided sand or silt reinforces the film made up of some other emulsifying agent is especially difficult to break.[16]

Some chemists and technologists attack an emulsion through the theory that films charged with unbalanced electric charges are surrounding the particles,[17] and if the chemical used will liberate ions of opposite sign in, or at, the interface, neutralization will take place, the droplets will coalesce, and separation of the liquids be made easy. They call attention to the greater effectiveness of bivalent and trivalent substances over monovalent ones. Ferric chloride, $FECl_3$, and aluminum sulfate, $Al_2(SO_4)_3$, are quite active in this respect with many emulsions, while sodium chloride, NaCl, is relatively weak. On the other hand, many technologists use chemicals to dissolve something in the liquid of the dispersed (or in the interface) that will lower the surface tension of that liquid and so promote coalescence. For example, oleic-acid mixtures are sometimes used to break water-in-oil emulsions.[18] Oil-soluble substances, like rosin soap,[19] can be used to break-oil water emulsions; the difficulty is to get the soap out of the oil afterwards.

The work of Hatschek,[20] Langmuir,[21] and others has done much to give a clearer conception of the principles underlying surface tension, and so encourage the solution of emulsion problems with less of the hit-or-miss methods that formerly prevailed; for instance, the blowing up of oils in refinery agitators. Sometimes agitating tends to break an emulsion; sometimes it makes the emulsion "tighter."

Gibbs[22] discovered that a substance dissolved in a liquid will concentrate in the surface layer if by so doing it will decrease the tension or energy of the surface layer relative to the body of the liquid, it will remain in greater concentration in the body of the liquid than in the surface. In other words, a liquid (gases and solids, too) always tries to decrease its surface energy and distributes substances within itself with this end in view. Soaps and other substances found in emulsions, which lower the surface tension of one or other of the phases, will, therefore, tend to concentrate in surface films. In "blowing up" an emulsion in an agitator or tank, a great amount of surface is created in the forming of the bubbles. Some of the soaps and other substances will concentrate in the bubble films and be carried off as a froth; some will stay behind. In this redistribution of the contaminating substances, there is the possibility of getting the proper balance of surface tensions and having the emulsion break; there is also the possibility of carrying away needed solvents and securing a tighter emulsion.

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CENTRIFUGING PETROLEUM EMULSIONS

Principals Involved in the Industrial Resolution of Emulsions in the Centrifuge and Their Successful Application Discussed. Will Be More Useful When Method Is Better Understood

By Eugene E. Ayres, Jr., Philadelphia

The centrifuge has come into general use in the oil fields and in the establishments where lubricating and fuel oils are used. Probably centrifugal machinery will be found more useful in the refinery when the operators are more familiar with the principles of modern centrifugation and when centrifugal engineers better understand the refinery emulsion problems.

The purpose of this paper is to present, briefly, the principles involved in the industrial resolution of emulsions in the centrifuge, and then to discuss some of the recent developments in refinery applications.

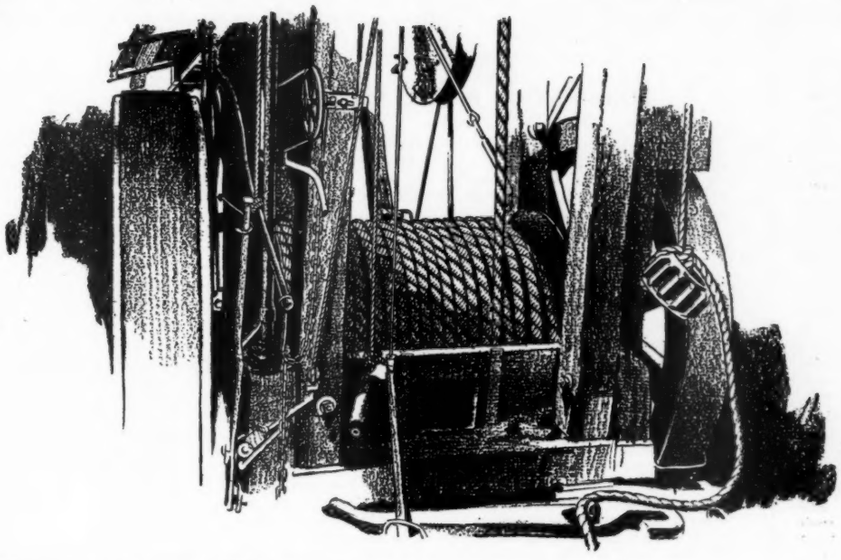
It is not generally realized that centrifugal force and gravity have two distinct functions: First, subsidence wherein the suspended globules are brought into contact; second, coalescene (when this is possible) by rupturing the films around the globules. In the case of a water-in-oil emulsion, an exercise of the former function alone would yield: (1) oil, free, or as free as desired, from water; and (2) a concentrated water-in-oil emulsion—concentrated in the sense that it contains a relatively large percentage of the internal phase. An exercise of both functions will yield: (1) water-free oil and (2) oil-free water.

Centrifugal force is much better than gravity for subsidence because, in the case of industrial emulsions where the suspended globules are visible under a microscope, subsidence is directly proportional to the force applied.

Centrifugal force is only slightly better than gravity for coalescence. A minute trace of a proper reagent will immediately do more to nullify the interfacial surface tension opposing coalescene than an indefinite application of the highest attainable centrifugal force. No mathematical analysis has been made to explain the failure of high centrifugal force to induce a decidedly more rapid and more complete coalescence than is obtained by gravity.

The adjustment of the centrifuge rotor depends more on the extent of coalescence that is desired or is possible than

(Continued on Page 88)



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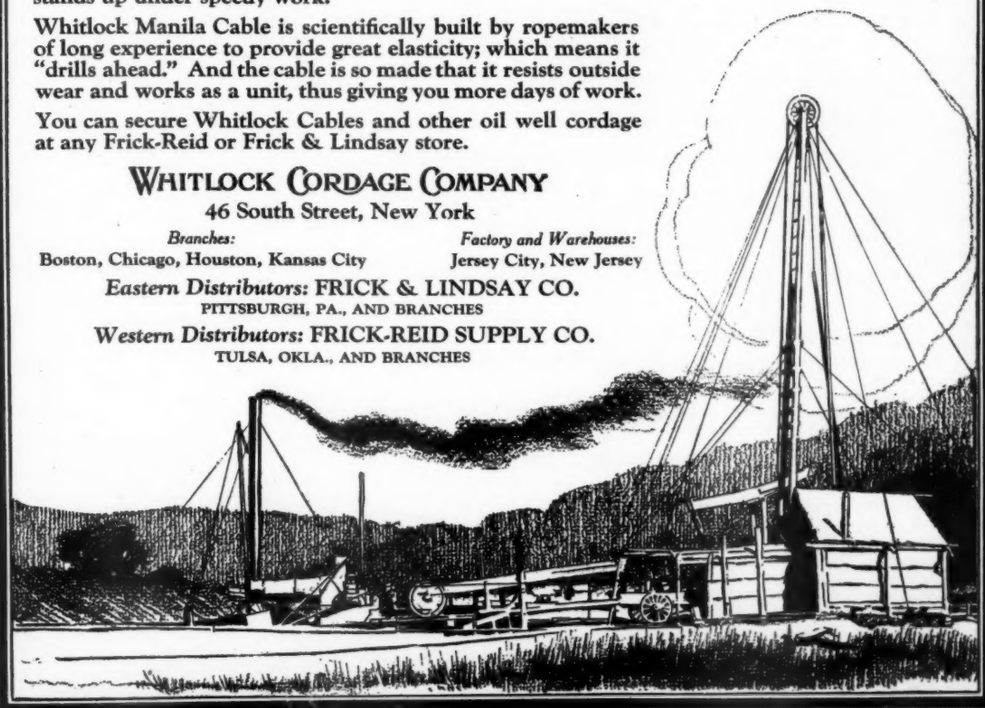

Dangers of Dilution of Crankcase-Oil

If Not Remedied May Force New Type of Engine and Use of Heavier Fuel, and Compel Finding New Market for Gasoline

By William F. Parish

Read before a regular meeting of the Automotive Service Association at the Automobile Club of America, New York City, October 11, 1923. Mr. Parish was in charge of the lubrication department of the air service during the war. He wrote the original specifications for Liberty Aero Oil and all other oils for the United States Army.

LUBRICATION PROBLEMS ANALYZED

After stating that the one important function of a lubricant is to prevent the wear of all machine bearing and rubbing surfaces, the author enlarges upon lubrication requirements and says the greatest economic value of a lubricant can be secured only when it is allowed to work in an uncontaminated condition. This is followed by statements regarding the ways in which lubricants may become contaminated, and means of preventing lubricant contamination.

Oil viscosity is discussed, and comments are made concerning the almost universal tendency toward the use of the heavier oils, together with detailed consideration of the functions of a lubricant in connection with internal-combustion engine fuels and their changing end point distillation values as the demand for fuel increases.

Present day lubrication problems, especially with regard to wear of engine parts and crankcase dilution of oil, are presented and commented upon; and the effects of dilution upon oil viscosity are described and illustrated by charts.

The history of repair and parts replacement demand is given, numerous statistics being included, and emphasis is placed upon the necessity of appreciating wear as an actual detrimental fact.

Statistics of recent parts replacement requirements and their cost are enumerated, and practicable improvements to reduce such demand are advocated, such as definite mileage periods after which engines should be drained of oil and refilled. The prevention of oil contamination is treated also, and three specific recommendations are made concerning drainage intervals, accessibility for drainage, and care of the engine during its running-in time.

Past failures of the individual types of machines and parts are shown by the history of mechanics to have been due largely to a lack of proper lubrication. The one important and economic function of a lubricant is to prevent the wear of all machine bearing and rubbing surfaces. Further, when machines and parts cannot be made so they can be lubricated properly, they cease to be of commercial use and they must be replaced with other machines or parts that will accomplish the same work, but that can operate without the waste due to wear. When better machines are provided, their usefulness is determined to a great extent by the factor of lubrication.

Primarily, lubricating oil is used for the purpose of keeping surfaces apart so that actual contact does not occur. The most economical lubrication is provided when the oil is just thick enough to prevent metal-to-metal contact under a certain pressure, speed and temperature, and is not thick enough to cause a drag on the mechanism. Various factors will cause the surfaces to come together, such as overheating of the oil; dirt or hard substances in the oil that break the film or abrade the metal surfaces and cause heat; and dilution of the oil with some lighter liquid, such as with water or with liquid fuels. The greatest economic value of a lubricant can be secured only when it is allowed to work in an uncontaminated condition. Probably, all mechanical failures can be traced to lack of proper lubrication because the lubricant was in a contaminated condition and could not function properly.

Lubricant Contamination

Contamination of the lubricant is caused in many ways. Where lubrication has been effective for months, the air cylinders of air compressors may show seasonal wear due to their having sucked-in dry dust and dirt. This material collects on the lubricating film and renders it practically useless for the prevention of wear. The cylinders of steam engines may not have had the tool marks worn off for years, but when boiler trouble occurs and foaming brings over a mass of chemicals, water and solids, these will destroy all traces of the protecting film of lubricant and excessive wear will occur within a very short time. The shaft bearings of steam turbines that are lubricated with oil from a forced-feed system will not give evidence of wear for years; yet, if an excessive amount of water is allowed to enter the lubricating system, emulsion deposits may be formed, that will prevent lubrication and the bearings will burn-out within a few moments of time. Watches probably are the best examples of successful lubrication with pure uncontaminated oil. Under such conditions they run reliably, but one drop of water or of gasoline and an infinitesimal amount of the finest sand will ruin the works.

The extreme comparison is found in the sand, cement and similar industries, where the machine bearings are exposed to sand, clinkers, steam, water and dirt. Wear is constant and expected under such conditions; it is prepared for adequately and is considered as a part of the business. In these industries, it has been found possible to protect the machine bearings so that the lubricant is not contaminated, and repairs are no more frequent than those made in normal plants.

Under conditions such that dirt is likely to enter the lubricant, it is the custom among lubrication engineers to use the thickest of the oils. The reason is that these thick oils will absorb the particles of dirt to such an extent that they do not become abrasives. The other extreme is to use thin oils with emery or glass abrasives in griding operations.

These lubrication factors are not confined solely to the practice of the engineering specialist but are, more or less, subjects of common knowledge. The very common saying in all languages: "Don't put sand in the oil," has become an adage. General rules regarding lubrication are also so easy to assume that it is a common practice throughout the world, among persons who oil machinery, to use the thickest oils that can be secured, so that the intervals between oilings will become longer, so that trouble due to wear and hot bearings will be prevented, and generally, from their standpoint, so that the job will "go" better. In all branches of industry, the practical man has a very good idea regarding what will happen if the lubricant he uses is too thin, and it is his experience with thin oils that has caused the universal preference for the thicker lubricants.

A lubricating oil in an internal-combustion engine has three important functions to perform. The first and most important, (a), is to keep the bearing surfaces apart so as to prevent metal from striking metal and avoid consequent wear. The second, (b), is to maintain a lubricating seal between the piston-rings and the cylinder-walls for the prevention of losses of compression and gas. The third, (c), is to burn cleanly without the deposit of an excessive amount of carbon. Cleanness of the engine parts is of prime importance, all other things being equal.

In the early days of the automotive industry, there were no serious problems of lubrication of internal-combustion engines. Stratford has shown by his dynamometer-laboratory tests that the critical viscosity of lubricating oil for these engines is about 180 Saybolt sec. at 100 degrees F. I have shown that the average viscosity of all oils sold for the lubrication of these engines, during the good-fuel period previous to 1913, was about 190 Saybolt sec. at 100 degrees F. In this respect, therefore, the technical laboratory confirms automotive and oil-trade practice and we can take as standard for these engines, operating with fuel having good volatility, an oil of from 180 to 190 Saybolt sec. viscosity at 100 degrees F. These oils were the so-called "dynamo" and fine "engine" oils. They would be classed today as the extra-light motor-oils and are no longer used for the lubrication of such engines. The public even refuses to buy the oils that are classed as light motor-oils, some of which were the special heavy oils used for racing and similar work in the early days.

The wear on the engines during this period was not excessive. There was no general increase in the number and size of bearing surfaces, which is the engine builder's first reaction to reports of excessive wear, until the volatile fuels began to become scarce and heavier fuels were substituted. This was at a time when

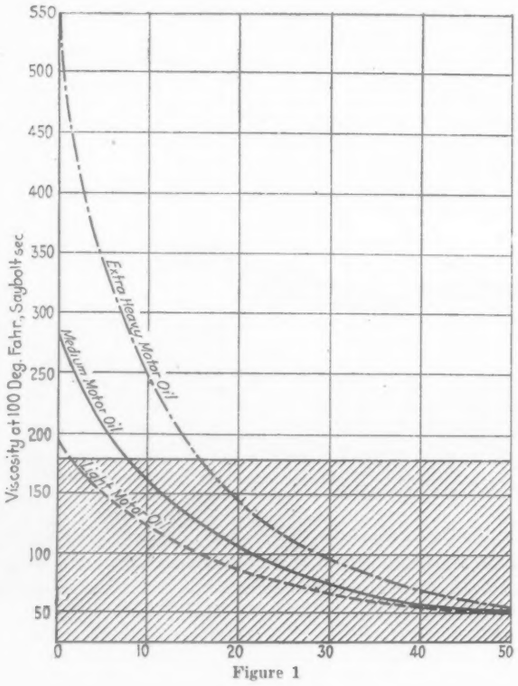

Figure 1

Chart showing the effect on the viscosity of various oils of adding fuel to them.

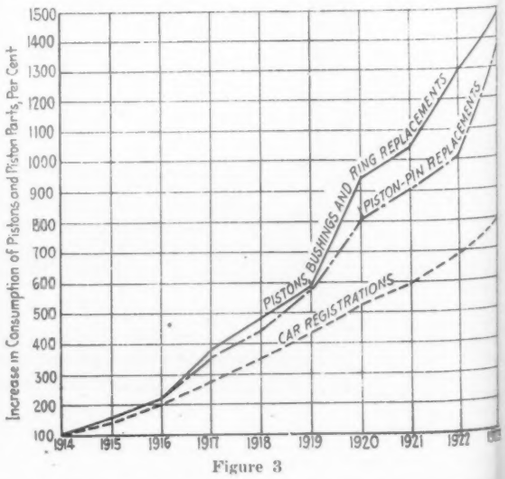

Figure 3

Chart showing yearly percentage of increase in consumption of pistons and piston parts from 1914 to 1923, using 1914 as 100 per cent.

Kelly & Jones CAST STEEL GATE VALVES for refinery service

Fig. 1200

Cast Steel Gate Valve for 350 lbs. Superheated Steam Pressure and a temperature of 800° F.

A dependable straightway valve admirably suited for high temperature cracking processes. Can be furnished for all working pressures and for temperatures up to 800 degrees.

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there was considerable activity in improving carbureter devices. It was also before the lubrication of these engines under the changed fuel conditions, which introduced a contamination factor, assumed the aspects of a problem.

Present Lubrication Problems

The lubrication and wear difficulties with which we are now confronted, in connection with the lubrication of more than 13,000,000 automotive engines, is the direct result of a marvelous mechanical development that has been too sudden to permit the maintenance of the factors of fuel, lubricant and engine in their proper balance. When internal-combustion engines were first built, the fuels available were very volatile and could be vaporized easily. Commercial gasoline was used extensively as a cleaner for clothes and gloves during this period; articles so cleaned would dry quickly and no odor would linger on them. Such gasoline did not form into liquid drops in the engine cylinders to drain into the crankcase, when used in an automobile engine. In leaking into the crankcase in a dry gaseous state during the compression stroke, gasoline of this high volatility did not combine with the oil to such an extent as to dilute the lubricant, although small particles of road dirt might be present and probably accounted for most of the wear that took place in the bearings and in the cylinders. Under these almost ideal conditions, the problem of lubrication for the automobile engine was no more serious than that of the lubrication of any other piece of machinery that would operate with undiluted oil, but that had some occasional space for dirt to enter and produce wear.

As the production of internal-combustion engines increased toward the millions, the original grade of gasoline of high volatility became scarcer. The question arose whether to limit the engine-fuel production to this grade of gasoline and raise its price, in consequence, or to produce as much fuel as might be called for, at a reasonable price. The latter policy was only possible by making constant changes in the volatile nature of the fuels as the demand increased.

Present-day commercial-gasoline is too heavy for use as a cleaning agent; its odor lingers and part of the kerosene it contains does not evaporate from the article cleaned. What has happened is that the original highly volatile gasoline has been stretched out by adding more of the heavier products that formerly were put into the fuel oils. As an immediate consequence this required the utmost development in carbureting devices, improvement in manifolds and the introduction of heaters and hot-spots, all being for the purpose of helping the automobile engine to utilize the heavier fuels.

Crankcase Dilution of Oil

Recent Government tests show that internal-combustion engines are now able to utilize fuels much heavier than those we are getting today. The main trouble is that dilution of the lubricating oil in the crankcase of the engine proceeds at a greater rate as the fuels become heavier, or less volatile. There was very little of such dilution with the original highly volatile fuel, but there is great dilution with the present fuel. There will be more dilution with the future fuel, should economic demands force producers to make it heavier.

It has been determined that crankcase dilution, or contamination of the lubricating oil by the present internal-combustion-engine fuel, is subject to certain general rules. Dilution begins at zero, with new oil, and increases gradually at a somewhat regular rate. The amount of fuel dilution of the oil is greater in cold weather. In summer, the amount of dilution, or contamination, within the same length of time, is less, because the engine is hotter and it boils-off the lighter parts of the fuel from the mixture in the crankcase. Apparently, fuel of a certain volatility will dilute the oil to a point where there is a balance, and continued excess leakages of fuel are thrown-off as vapor through the breather. When this balance is secured, the mixture of fuel and oil in the engine crankcase has lost its best characteristics as a ulbricant; then, it partakes more of the nature of heavy kerosene, contaminated with carbon, metal particles resulting from wear, and road dirt, all of which act as perfect abrasives with the thin fuel-and-oil mixture. Oil in this condition has lost its power as a sealing agent that will prevent losses of compression pressure and gaseous mixture.

Effects on Viscosity

The effect on the viscosity or body of various oils of adding fuel to them is shown in Fig. 1. The lower portion is shaded below 180 Saybolt sec. viscosity. This degree of viscosity was determined by Stratford as being the critical point for internal-combustion-engine lubrication, supported by the custom of furnishing oil of 180 to 190 Saybolt sec. viscosity for engine lubrication at a time when there was no dilution to complicate the problem. From this chart, it is obvious that the light motor-oils cannot be used with more than 2 per cent dilution or they will enter the dark area; that is, these light oils with 2 per cent of fuel added are too thin for the engine, according to the best advice we have as to a standard for lubricating the engine. Medium oils having 8 per cent of dilution will enter the dark, or wear, area shown in Fig. 1. Extra heavy oils will withstand 16 per cent of dilution with fuel before they are made thin enough to bring them into the wear area.

At this point, I wish to sound a warning note. The motoring public has known more in a general way about this oil-dilution condition than has been acknowledged generally by the technical men in both the oil and the automotive industries. Contrary to recommendations made by the oil and by the automotive industries to use the lighter oils, the public stopped buying these oils and changed to the use of the heavier grades to such a surprising degree as greatly to upset the entire lubricating industry during the period from October, 1919, to April, 1920, as shown in Fig. 2. Evidently, there was excess wear and trouble at this special period. The light oils were contaminated by the fuel to too great an extent in too short a time, there was a partial relief in using the heavier grades and, in consequence, the supply of these oils was soon exhausted. It should be evident to all that there is a public factor in the problem, and that it must be given careful consideration.

The effect of the use of the thin oil and fuel mixtures in these engines should be appreciated. With these thin mixtures of oil and fuel, lubrication is not progressing satisfactorily and, in consequence, wear is taking place. This wear may continue for some time before it causes any marked change in the physique of the engine, and nearly all the ills of the engine can be traced to this condition. Oval cylinders are caused by wear, because the surfaces are not lubricated with clean oil that has sufficient body to keep the surface separated. Worn piston-rings, worn pins and worn bearings, are all caused by lack of lubrication due to the use of the thin mixtures of oil and fuel. The effect of this general wear is seen in that the thinned oil is pumped up into the explosion chambers, there to form and deposit carbon and interfere with the proper operation of the ignition system. Other bad effects are loss of compression pressure, the noisy operation of the engine, loss of power and control, burning-out of bearings and, finally, the necessity for major repairs that are so much talked about in connection with the ownership of a car or a truck.

Wear as an Actual Fact

In the discussion of this dilution problem, the fact that wear takes place has not been established in so definite a manner as have the facts of contamination and dilution. The facts regarding wear apparently were so plainly evident that they were not appreciated. We must revert to the basic principle that the lack of lubrication, through the use of contaminated oil, causes wear. This wear must be reflected in the demand that exists for repairs and for spare parts.

Repair and Replacement Demand

This demand could have been met through the increased effort of the engine builders, but because of trade conditions an auxiliary industry has been founded for the purpose of supplying these important spare parts to the repair shops that are outside of the control of the automotive industry. In 1914, the automobile trade directory listed 50 such concerns, and the total number of branches of this trade was 6. In 1923, this spare-parts industry had grown to comprise 698 concerns, and the total number of branches of the trade was 17. This growth is shown in Table 1.

Manufacturers of Piston Parts and Tools

	Registered No. of Manufacturers 1914	1923
Jigs for Piston Aligning	..	34
Reamers for Piston Bushing	..	14
Machines for Piston Centering	..	3
Piston Clamps	..	19
Piston Machines Automatic	2	4
Piston Pin Bushings	..	92
Piston Pins	3	102
Piston Rings Compressing Tools	..	14
Piston Ring Expanding Rings	..	251
Piston Ring Expanding Springs	..	251
Piston Ring Grinders	6	4
Piston Ring Groove Cleaning	..	18
Piston Ring Tools	4	14
Piston Rings	30	251
Piston Squares	..	24
Piston Vises for Fords	..	19
Pistons	5	105

Table No. 1—Growth of the Automotive Spare Parts Industry from 1914 to 1923

Fig. 3. is made up from the registration of motor cars and trucks for the years 1914 to 1923, on the basis of gains each year in percentage. The total gain for the period was 700 per cent. The registration of passenger cars and trucks was divided into four groups of 4, 6, 8 and 12-cylinder engines. This was for the purpose of obtaining the correct number of parts in use. An investigation was made to determine

(1) How these various parts were replaced yearly.
(2) The value of these parts.
(3) The value of the service labor involved in their replacement.

These determinations were made by Mr. Prescott from many previous studies, and after consultation with experts.

Increase in Replacement

From 1914 to 1916, the increase in the replacement of piston parts followed very closely the increase in motor-vehicle registration but, in 1917, the fuel demands for export, coupled with the increased demand caused by the entry of this country into the war, caused a decided decrease in gasoline volatility. According to the 1915 to 1917 Bureau of Mines' survey, the maximum end-point of the fuel increased from 380 to 450 degrees F. It is a matter of common knowledge that fuel conditions in 1917, for all motor vehicles outside of Government control were relatively bad, due to necessity, because the best fuel was reserved for war purposes. This, of course, would lead to greater dilution troubles in the motor equipment operated by the general public, and this naturally would be reflected in greater piston-parts replacements during the period stated.

Fig. 3 shows that the replacement of pistons and piston parts has increased with much greater rapidity than has the number of cars and trucks in operation. The two largest increases came in the years 1916 and 1917, just prior to our

(Continued on Page 98)

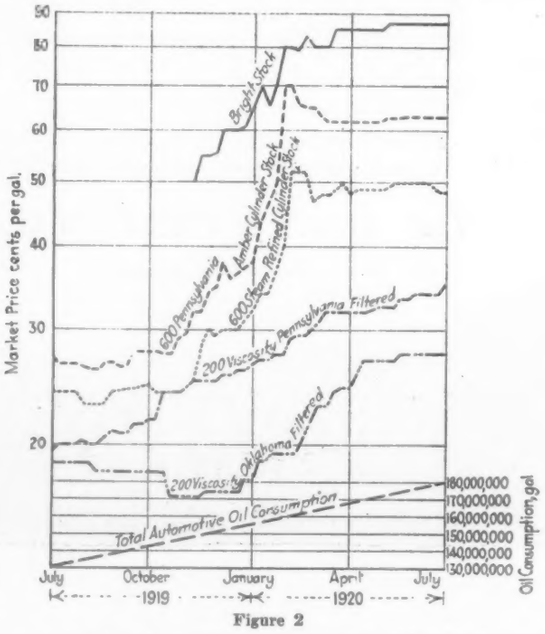

Figure 2

Chart giving the prices of various grades of lubricating oils for the year ended June 30, 1920, at a time when there was depletion of stock used for making motor oils.

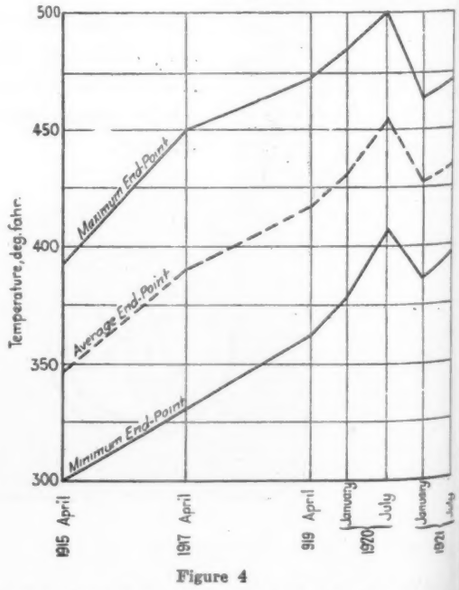

Figure 4

Chart showing how the end-point of the fuel supplied for use in internal combustion engines has risen from 1915 to 1921. From the Bureau of Mines survey.

It Is Easy to Take Down An Ajax Engine

All the nuts that hold the cylinder to the frame are accessible from the outside. Notice, in the view of the engine shown above, that the lower studs have been put into the frame instead of the cylinder.

Notice also the adjustable cross-head on the pump, which is so arranged that it can be fitted to any drilling engine.

Genuine Ajax Engines and parts are

Distributed by
NATIONAL SUPPLY COMPANIES
in every field

Manufactured by
AJAX IRON WORKS
Corry, Pa.

AJAX DRILLING ENGINES

Furnace Oil New Market for Petroleum

Low Grade of Kerosene, or High Grade Fuel Oil, Ready for Consumers Who Use Oil for Household Heating.

By N. O. Fanning

NEW YORK, Oct. 8.—The importance of the newly organized movement on the part of oil refiners and associations to push the sale of fuel oil for home, apartment and office-building oil-burning installations can hardly be overestimated. The remarkable fact is that while it may appear that the movement was inaugurated as a plant to dispose of some of the large surplus stocks of oil now on hand, it was actually promoted by an insistent public demand for oil burners.

For many weeks the various oil associations, and particularly the American Petroleum Institute, have been taking the matter of the utilization of heavy oil fuels under serious discussion. Several meetings of the board of directors of the Institute were held and it is understood that R. L. Welch, general counsel of that organization, was foremost in urging the oil refiners to accede to the growing public demand for oil burners. Several of the largest refiners in this territory have been extremely hesitant about encouraging the use of oil burning equipment for homes because they did not see a sufficient supply of petroleum to meet the potential demand for oil which might arise if this equipment should come into general use.

Ready for Contracts

As already stated, their final accession to the ranks of those ready to stimulate the use of oil burning equipment has been due not only to the overproduction of oil, but to the fact that it seemed very apparent that the public intended to install oil burners to a large extent whether particular companies encouraged them to do so or otherwise. There have always been a few large oil companies ready to supply fuel oil for home oil burners on long-term contracts, but now nearly all companies are ready to make suitable contracts to supply furnace oil.

Furthermore, the Standard Oil Co. of New York and Standard Oil Co. of New Jersey, among others, have perfected a particular grade of oil suitable for use in home oil burners. It is called "furnace oil" and is in reality a low grade of kerosene, ranging about 41 or 42 gravity. Some oil burners use a lower or higher grade of oil. The minimum is about 28 gravity, or a high grade fuel oil, while the maximum is about 46 to 48 gravity kerosene. Practically all oil refiners are making furnace oil at the present time.

The sale of this furnace oil means an entirely new field for the marketing of petroleum. Furnace oil, the new petroleum product, comes in between fuel oil and kerosene, and means the utilization of oil that otherwise would have to go into either fuel oil or kerosene. It is worth noting that it will cut into supplies of both, but will not interfere directly with either.

Still in Early Stage

The use of furnace oil and oil burning equipment for the home is a comparatively new development. Being in the early stages, it is natural that some of the oil burning equipment now made is largely experimental. There are burners which have been on the market for several years, but there are numerous other makes which have just come on the market. The question of suitable equipment is, of course, one of the most important from the point of view of the successful development of oil burning. Persons who buy oil burning equipment and find that it does not live up to promises will in many cases condemn oil burning as an institution and will be lost as prospective users for an indefinite period. This will undoubtedly happen in some cases; it always does with a new development of this kind. But gradually the mushroom oil burner manufacturing concerns will be weeded out, and enough real ones will be left to provide a wide field for choice in oil burners for various purposes.

The oil companies are desirous of encouraging the oil burner manufacturers as far as possible, but most of them consider it beyond their province to recommend any particular brand, on the grounds that it would be unfair to others. The proposal that oil companies get together to develop a simple burner has been put forth, but it is not believed the refiners as a whole will look with favor on going into the business of manufacturing oil burning equipment. They believe they will be kept busy enough supplying furnace oil, to say nothing of the many other important products of petroleum, and of perfecting these through laboratory experiments.

However, the oil industry is in a position to help manufacturers of home oil burners. It is possible that the American Petroleum Institute will invite manufacturers of such equipment to its annual meeting at St. Louis this December.

At a meeting of the board of directors of the American Petroleum Institute held on September 24, as reported in last week's issue of The Oil and Gas Journal, it was determined to appoint a subcommittee of the board to study the utilization of fuel oil and distillates and to report to the board at the annual meeting whether a program to develop their use further should be adopted by the Institute. It was also determined to request the cooperation of the entire oil industry in collecting and disseminating currently the facts as to production, consumption and storage of petroleum and its products. The importance of the latter can be readily seen, as it is absolutely essential that the industry be able to assure an adequate supply of furnace oil, as well as other products, if the use of such products is to be encouraged. Here we have a clear illustration of the value of reliable statistics.

Supply of Oil Assured

As far as the big refiners are concerned, the present situation as to oil production warrants the encouragement of the use of oil burning equipment in homes. The Standard Oil Co. of New York, the pioneer manufacturer of furnace oil in this territory, assures its customers of an ample supply for the future. The Sandard Oil Co. of New Jersey takes a similar stand, but with reservations. It says:

"Predictions as to the source of petroleum supply and prices over a long period in the future are always hazardous on account of the great variation from time to time in both supply and demand. This statement is necessary because it represents a fundamental fact well known in the petroleum industry, and one which every possible customer must take into consideration. Failure to make the statement at this time might lead to future misunderstandings.

"However, under conditions as they exist in the industry today, the supply of oil is adequate, in fact plentiful, and the price low. Domestic users of oil burning devices carry fuel insurance through dual heating devices.

"In other words, in the event of a considerable advance in oil prices with a decline in the cost of coal, the oil burning equipment can be easily disconnected and set aside, and the furnace almost immediately, and with little expense, reconditioned for the use of coal or fuel. With subsequent changes in the fuel market favorable to oil, the oil burning equipment is again connected and advantage taken of the lowest cost fuel."

It is only right that the oil industry should protect the public by giving it facts regarding the supply of oil before encouraging the widespread use of oil burning equipment. However, in the foregoing statement it is clearly shown that the conversion to oil burning equipment is by no means a step which cannot be corrected if the necessity arises. That necessity may never arise.

Oil Burning Devices

Inquiries pouring into the offices of local oil companies and The Oil and Gas Journal call for a general outline of the situation governing the advisability of turning from coal to oil, and the choice of oil-burning devices. Oil as fuel oil has many obvious advantages over coal: cleanliness, no ash removal, more compact storage, automatic operation which eliminates shoveling, no wasteful burning of fuel when heat is not required, ease of starting the fire, simplicity of installing the supply of oil from tank-wagons into storage tanks, etc. It is generally appreciated that the coal fired domestic furnace is most wasteful in its operation. At night coal is burned and little useful heat is generated. At this time the efficiency is approximately zero. In the morning hot coals are shaken through the grates, resulting in the loss of fuel. When coal is thrown in it chills the furnace, causing loss of rich gases that pass out into the atmosphere unconsumed.

In spite of all these advantages, there are considerations which must be taken into careful account in the choice of oil burners. The public must, of course, remember that there are some devices which are bound to be exploited which do not live up to the promises made about them. Eliminating these, however, we still find that not all users of coal can economically turn to oil at the present time.

To be satisfactory oil burning equipment for use in the home must be absolutely safe from every standpoint and meet the regulations of the Board of Fire Underwriters. It must be perfectly reliable, reasonably simple and economical, both as to cost and its maintenance.

It has been found that the use of oil is not always more economical than coal under the same conditions. However, from the point of view of efficiency, oil is often more economical than coal. With an oil burner, it is only necessary to turn the burner off and to stop or start the heat almost immediately. In intervals, no heat is wasted. In coal furnaces, the heat is worked up gradually in the morning. The fire reaches a height and then gradually dies down until more coal is put on. This goes on all day. The fire must be kept going all night throughout the winter, although less heat is needed. Some oil burners are equipped with thermostat arrangements which guarantee a steady heat throughout the day, and guard against overheating and wastage of fuel.

Some of the more complete oil burners require that the house equipped with them have both gas and electricity, gas to provide for ignition of the oil and electricity to control the thermostat.

Cost of Furance Oil

Furnace oil sells at about 8 to 10 cents per gallon at the present time. It is sold usually in lots of 1,000 gallons. Oil companies will make contracts for about a year's supply. One thousand gallons will last 60 days as a rule for each burner, although special circumstances govern this.

The Standard Oil Co. of New Jersey has compiled a table showing equivalent cost of coal per ton, based on actual operating conditions and various prices for oil, as follows:

Gallons oil per ton of coal / Cost of oil (cents per gallon)	Most Efficient Burner Under Favorable Conditions 100	Least Efficient Burner Under Unfavorable Conditions 160
7	$ 7.00	$11.20
8	8.00	12.80
9	9.00	14.40
10	10.00	16.00
11	11.00	17.60
12	12.00	19.20
13	13.00	20.80
14	14.00	22.40
15	15.00	24.00
16	16.00	25.60

The present cost of furance oil in this territory, as stated, ranges from 8 to 10 cents per gallon. It is usually delivered in tank wagons containing 1,500 gallons, but can also be bought in lots of 750 gallons. A storage tank capable of holding 1,500 gallons is considered most practical.

UNITED FRUIT FLEET SOON ALL OIL BURNERS

Despite prolonged strikes at the Cammel-Laird shipbuilding plant at Birkenhead, Eng., one of the three new electrically driven Diesel-engined vessels designed for the United States Fruit Co. has been given a trial trip. It covered 1,300 miles and was highly successful. The new craft, christened the La Playa, will probably be in active commission before the end of November.

Comparatively slow progress is being made on two other ships of the Great White Fleet, so it is doubtful if they are in service for five or six months.

In addition to its expansion plants, the United Fruit Co. has been busy all year converting its American fleet into oil-burners. By the end of next month the last unit will have been modernized, whereas, at the opening of the year 12 of the 34 ships were coal burners.

Incidentally, the break in oil prices carries a saving on a consumption of at least 1,500,000 bbls. annually. The contract for 1924, when made, will be far below the 1923 figure.

STINNES TO BUY TEXAS OIL?

According to the New York Commercial, Hugo Stinnes, the German industrial leader, and a group of bankers are reported to be bargaining for oil fields in Texas and for a new field in the western part of South America, where independent American oil producers are said to have found oil in large quantities. The Panama Canal will enable this field to market in Europe and furnish the Stinnes industries with enough fuel to enable them to discount the loss of the German coal fields.

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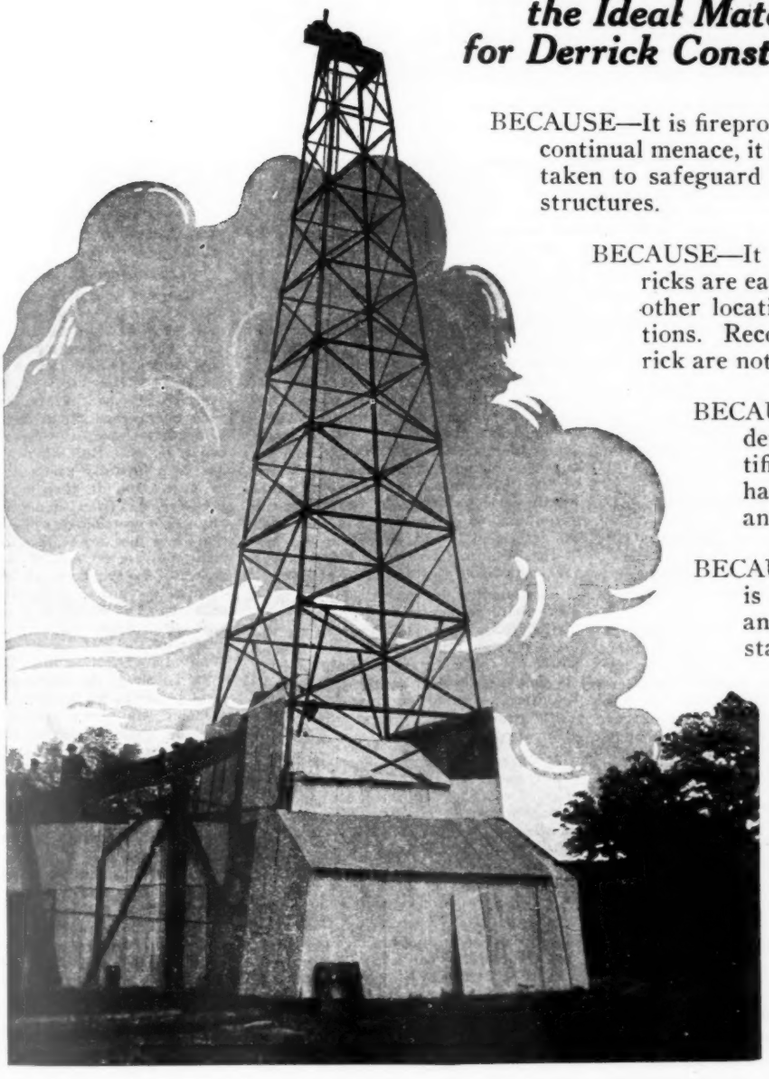

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Government Regulation of Oil Industry

Price Control Must be Left to Law of Competition and Cannot be Controlled by a Government Bureau

By C. B. Ames

The petroleum industry is naturally subdivided into the production, transportation and refining of crude oil and the marketing of its products. These subdivisions involve separate factors and should be considered separately in discussing Government regulation.

Production of Crude

Crude oil is at present found in about 200 fields, in 18 States of the Union. There are about 285,000 wells now producing, some of which yield several thousand barrels each day, while thousands of them yield less than one barrel each day. There are approximately 15,000 individuals, firms and corporations owning these wells, besides the multiplied thousands of stockholders who own stock in the corporations. In some of these wells oil is found at a depth of a few hundred feet, while others are over a

C. B. Ames

mile deep, and the cost of drilling them ranges from a few hundred dollars to many thousands of dollars. The cost of production varies in every field, and to a certain extent in every well. Some producers own only one lease in one field, while others own thousands of leases in many different States.

In considering Government regulation of production, the extent to which Government can go, under our constitutional limitations, and the extent to which it should go, both require consideration. We may start with the settled legal doctrine that the owner of the land, while he does not own the oil lying underneath the surface, does possess a vested right to drill in search of oil, and that when he has found and reduced it to possession he then owns it as completely as any property is capable of ownership. This right cannot be taken from him by either the United States or the State. The only point at which the United States can touch the oil industry is under the power of Congress to regulate interstate commerce.

Powers of Congress

It is well settled that production of minerals, even if intended for shipment outside the State, is not a part of interstate commerce, and Congress, therefore, has no power to regulate production. In speaking of a similar subject, the Supreme Court says:

"Coal mining is not interstate commerce, and the power of Congress does not extend to its regulation as such." (United Mine Workers v. Coronado Co., 259 U. S. 344, 407.)

And again:

"The making of goods and the mining of coal are not commerce, nor does the fact that these things are to be afterwards shipped or used in interstate commerce, make their production a part thereof." (Hammer v. Dagenhart, 247 U. S. 251, 272.)

The States, however, have a measure of control, based on the maxim that no man has a right to use his own property so as to injure the rights of another. The State can prohibit waste. It has been definitely held that waste of gas into the air can be prohibited, although it interferes with the production of the oil. (Ohio Oil Co. v. Indiana, 177 U. S. 190.) Wasteful use of gas can likewise be prohibited, it having been definitely held that the State can prevent the use of gas for the manufacture of carbon black, although the value of the carbon black is greater than the value of the gas for heating purposes. Walls v. Midland Carbon Co., 254 U. S. 300.) It has likewise been held that the State can prohibit pumping mineral water from underground strata in order to obtain gas only where the water is allowed to waste. (Lindsley v. Natural Carbonic Gas Co., 220 U. S. 61.)

State May Prevent Waste

It is impossible to define the limits to which the State can go in preventing waste. It might possibly prohibit the production of oil for storage in earthen tankage. It might possibly exercise some control over the number of wells which may be drilled and their location, both on the theory of preventing waste of the oil and its wasteful production. The petroleum industry might well consider the advisability of cooperating with the States in drafting legislation to prevent wasteful production. There is certainly an enormous waste of money in excessive drilling, and doubtless an enormous underground waste of oil. The statute of Oklahoma defines as an economic waste and prohibits the production of oil which cannot be marketed at a just price, but I believe the validity of this statute has not been passed upon by the courts, although the Corporation Commission of Oklahoma has at times cooperated with the producers in restricting output where the production would be an economic waste. I have no doubt that under the statutes of Oklahoma today the producers, under the jurisdiction of the Corporation Commission, could legally develop a plan for restricting the output in any given field, and that such an agreement would be within the law of the State and free from attack under the statutes of the United States.

I am equally clear in the opinion, however, that neither the State nor the United States has the power to fix the price of crude oil, and that, even if such power existed, its exercise would be crude oil, and that, even if such power existed, its exercise would be unwise and unsound economically.

The Right to Fix Prices

It is, of course, obvious that if the Government has the power to fix the price of crude, it has the power likewise to fix the rate of royalty and rentals and likewise the price of land and of everything found in the land, such as coal and iron ore, and of everything that is produced from the land, whether in the form of timber or of agricultral products.

It is only within a very limited area that Government, under our constitution, has the right to fix prices. Subject to the rule that the prices must be reasonable, the Government has the right to fix the price of railroad transportation and of electricity, telephone service and water when supplied by a private corporation under a franchise granted by the public. This right rests on the theory that the business is a natural monopoly and not subject to the control of competition; that such corporations enjoy special privileges granted by the public; that when their money is invested in the business it is done with the konwledge of the obligations of the business; that the duty rests upon the utility to continue to render the service and that the owner cannot, at will, discontinue the service. In other words, the price fixing here is correlative. It not only binds the owner of the property, but it binds the purchaser, so that any one who buys the service is bound to pay the prescribed price and is not at liberty, by contract, to pay either more or less; nor is the owner at liberty to furnish the service or not when he pleases and to whom he pleases, but he is required at all times to furnish his service to all comers.

On the other hand, the owner of crude oil can sell it or not as he likes, just as the owner of land can do, and the Supreme Court has ruled:

"An ordinary producer, manufacturer, or shopkeeper may sell or not sell as he likes." (Chas. Wolf Packing Co. v. Court of Industrial Relations, 43 Sup. Ct. Rep., 630, 634.)

In the same case the Court also said:

"It has never been supposed, since the adoption of the Constitution, that the business of the butcher, or the baker, the tailor, the wood chopper, the mining operator, or the miner was clothed with such a public interest that the price of his product or his wages could be fixed by State regulation."

Petroleum Private Property

There is a vast difference between regulating industry so as to prevent waste and price fixing; the former being entirely consistent with private ownership and control, as to which in every industry it is the duty of every owner to exercise his own rights of property in such a way as not to unreasonably injure other owners of property possessing equal rights. But when the petroleum has been lawfully produced and reduced to possession, it then becomes private property, as much so as in the case of any other commodity, and the owner has the same measure of control, the same right to sell or not to sell, the same right to fix the price of his commodity as does the owner of a bushel of wheat or a pound of cotton or a ton of coal or an acre of land. Okla. v. Kansas Natural Gas Co. 221 U. S. 229; Penn. v. W. Va., 43 Sup. Ct. Rep. 658.)

If, however, the Government had the legal power to fix the price of petroleum, economic law would prevent its doing so for the obvious reason that it would have no basis on which to act, no definite criterion to guide its course. In fixing prices of telephones, electricity and railroad service there are definite bases upon which to act, including the investment in and the value of the property which has been devoted to the public use, the volume of business, the stability of the business, the value of the service and the return on the investment. It would be impossible to apply any of these established formulae to the oil industry. Of the 15,000 producers each one probably has a different cost of production. Obviously it costs more to produce oil from a small well than it does from a large one. If all the wells belonged to one company, a general average of cost might be applied and an approximate value of the investment might be obtained. But with 285,000 wells producing oil, and each one involving more or less difference, with 200 oil producing fields, each one of which is different from the others, with production at times far in excess of the demand and at other times far below the demand, with the life of every field speculative, with the possibility of any well being a dry hole, it is obvious that no Governmental bureau could fix a price based on cost of production. If the price should be based on the cost of settled production, it would make enormous and unjust profits for the flush production.

In addition to these facts within the

(Continued on Page 86)

WHY GOVERNMENT CONTROL IS UNFEASIBLE

Judge C. B. Ames, general counsel of The Texas Co., in his address Wednesday night at the banquet of the Mid-Continent Oil & Gas Association in Tulsa, emphasized the following points:

Neither the State nor the United States has the power to fix the price of crude oil and even if such power existed its exercise would be unwise and unsound economically.

If the Government had the legal power to fix the price of petroleum, economic law would prevent its doing so for the obvious reason that it would have no basis on which to act, no definite criterion to guide its course.

Competitive conditions exist in the oil industry, if anything, more strenuous than is desirable from the standpoint of either the industry or the public.

Fixing the price of gasoline would, of course, necessitate fixing the price of crude oil and that is impossible. Fixing a margin of profit is impossible unless the price of gasoline is fixed. It is, therefore, plain that competition alone can regulate price and that either price fixing or the fixing of a margin of profit in the gasoline industry, regardless of the legal aspects, is impossible from an economic standpoint.

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An Island in Midst of Ocean of Oil

Monroe County, Western Kentucky, Practically Untested, Now Being Discussed for its Possibilities as Producing Field

By Vern T. Whitney

BOWLING GREEN, Ky., Oct. 8.—Wherever oil men gather in western Kentucky today one topic at least is certain to be discussed, viz.: the possibilities of Monroe County as an oil producing territory. Although work in western Kentucky generally may be lagging, the people of the little town of Tompkinsville, county seat of Monroe, know that few days will pass without their observing the arrival of another drilling rig. Nor are all these rigs going to the Kettle Creek section, in which lie the now famous producing pool. The geologist is leading the enterprising operators into territory yet undrilled.

Monroe is one of the few counties located along the Tennessee line in southwestern Kentucky disturbed in the general upheavel of the Nashville Dome, which is the major uplift at the southern extremity of the Cincinnati Arch, that has not been developed for oil and gas to any great extent.

Its sister county on the east, Cumberland, saw its first development work as far back as 1829 when the Old American Well, located near the mouth of Little Renox Creek, just above Burkesville, was completed at a depth of 129 feet, where it started flowing, eventually to produce over 50,000 bbls. of crude petroleum. The impetus thus given the oil industry in this field was, unfortunately, not of lasting effect, despite the fact that no small degree of success attended the efforts to increase production.

New Pools Revived Field

It was not until about two years ago that renewed activities resulted in the discovery of a number of new pools scattered throughout the county sufficient in capacity again to command the combined interest of both producer and refiner, those two factors indispensable to the profitable development of any oil field. Today the Paragon Development Co., a subsidiary of the Paragon Refining Co., has under construction a trunk pipe line from the railroad at Glasgow in Barren County to Burkesville in Cumberland County, from which latter point gathering lines have been, or will be, laid to the different pools in both Cumberland and Monroe Counties. This line passes through territory that holds great possibilities for oil and gas, and with the completion of the line, now 6 miles of Burkesville, it is expected considerable activity will occur along its route traversing parts of Barren, Metcalf, Monroe and Cumberland Counties.

Its sister county on the west, Allen, has already proved itself to be one of the largest shallow producing fields in the world. Oil and gas were found within its boundaries more than 50 years ago by prospectors drilling for salt water, but the real activities did not begin until the year 1917, when W. W. Christian and associates of Sistersville, W. Va., drilled No. 1 Susan Moore into the Corniferous lime at a depth of 350 feet. The well started flowing 500 bbls. daily, and the oil boom was on in earnest. Development brought forth the famous McReynolds Pool in which leases sold as high as $1,200 per acre, but, with individual wells producing 1,200 bbls. of oil a day, the price was considered of little consequence, the production being secured at 250 feet. The Hooten lease in the Hooten Pool has produced over 4,000 bbls. per acre from the same depth, and the settled production in the pool is good today, with territory still undeveloped. The well known Mitchell Pool, where wells flowed 800 bbls. a day at a depth of 175 feet has been a veritable gold mine. The Mitchell lease proper is reported to have produced its 4,000 bbls. per acre with a good resultant settled production. The Adolphus and Petroleum Pools, where wells making over 100 bbls. daily were found at 100 feet, as well as numerous other pools, have been large revenue getters for the owners.

Barren County's Record

Barren County, on the northwest, has been producing oil some 40 years from the Corniferous and Silurian limes at depths ranging from 180 to 400 feet. At one time there was considerable excitement around Oil City, about 5 miles west of Glasgow, and a refinery was constructed to handle the production. The old Oscamp Pool on Boyd's Creek, about 4½ miles south of Glasgow, has been producing oil over 35 years at a depth of 180 feet. One of the original wells, still on the pump, is producing about 1½ bbls. daily at this time. In the extreme central east of the county, about 1½ miles west of Temple Hill, close to the Monroe County line, what is probably the largest gas well ever completed in southern Kentucky was drilled. Monroe County, practically untested, appears today, if not itself made up of oil, at least an island lying in the midst of an ocean thereof.

Monroe County is located on the north side of the Nashville Dome with Allen, Warren, Simpson and Barren on the northwest, and Cumberland, Clinton and Wayne on the northeast. The regional dip of the strata in the first mentioned counties is to the northwest, and the latter to the northeast. Practically all of the production in these counties is found on the small folds, including domes, anticlines and monoclines, on the flank of the Nashville Dome. Monroe County has apparently the same structural conditions, promising big reward to the successful wildcatter.

Not thought of perhaps in terms of domes, anticlines, and monoclines, the lands of Monroe early looked to the prospector like oil territory. Its pronounced structures, so plainly discernible through rock exposures along the creek beds, gave to the rolling surface a semblance to the lands which the prospector had found produced oil at home. During the year 1890 the South Penn Oil Co., a subsidiary of the Standard, leased up thousands of acres in Monroe, and again in 1902 the South Penn Oil Co. and the New Domain Oil Co., both subsidiaries of the Standard, acquired extensive acreage. Yet to date no definite drilling campaign has ever been carried out. Possibly 20 scattered wells have been drilled, most abandoned at the shallow depth of 250 feet or less. A knowledge of practical geology, it is safe to assume, was not employed in the location of most of these wells. Some four years ago when a well was drilled on a small fold exposed along the edge of East Fork Creek, about 5½ miles from Tompkinsville on the Tompkinsville-Glasgow pike, it came in flowing at 250 feet. As might be expected, considerable excitement ensued. Other wells in the vicinity followed.

Unusual Pressure

A well now being drilled by C. P. Taneyhill on the A. Williams lease in the vicinity of Persimmon in the northeastern part of the county encountered gas at 325 feet. The pressure was such that it could not be shut in until after the casing had been anchored. Another well now being drilled on Big McFarland Creek by parties from Dayton, Ohio, released gas that blew the tools out of the hole with force sufficient to break the drilling line and put the rig out of commission. At the present writing 8 wildcat tests are now underway in different sections of the county and as many more contemplated within the next 30 days.

Oil seeps are not infrequent. The largest, located on Meshack Creek, has been producing so long that "the memory of man runneth not to the contrary," and today, when the earth is cleaned away, several gallons of oil can be obtained in the course of 24 hours. Old residents, of veracity unquestioned in the community, tell of an oil seep on the waters of Skeggs Creek near Sulphur Lick Post Office, where the oil has covered the water to such an extent that the creek, by chance ignited, would be all aflame. Not a few farmers desirous of a good water well have experienced time and money wasted because of oil encountered at a shallow depth.

The fact that Monroe County does not enjoy the advantages of a railroad is apparently having no deterrent effect upon oil men. The excellent pike from Glasgow to Tompkinsville provides good road bed for the moving of rigs on the long haul, and most of the dirt roads can be traveled the greater part of the year.

One of the largest companies now actively operating in the county is the Louisville Gas & Electric Co., which has determined to carry on an extensive drilling campaign until its holdings have been given a thorough test, thus confirming or refuting the theory of its geologists and engineers who have made a close study of the territory.

These, say the enthusiastic operators of Monroe, together with the high gravity of the oil, are some of the reasons why that county is a favored subject of conversation at the present time.

Mr. J. C. Sibley, Jr., of Franklin, Pa., in an interview with the writer says: "I am very enthusiastic with conditions in Monroe County and I look for one of the best pools in the entire State to be uncovered here." Colonel Sibley has been camping in Monroe County for the past 3 months and will soon start his initial well there.

GASOLINE EXPERIMENT STARTS RUMORS

Bureau of Standards Reported Seeking Artificial Motor Fuel When Disastrous Explosion Wrecked Laboratory Building. No Confirmation of Speculations About Withholding of Patents for Substitutes

By Charles E. Kern

WASHINGTON, D. C., Oct. 8.—A great deal has been published about the explosion at the United States Bureau of Standards, resulting in the ignition of vapor from a quart of gasoline under artificial atmospheric conditions, but an important feature about which nothing has been said relates to the experimental work in relation to gasoline that was interrupted in this unfortunate way.

The Bureau of Standards, at the request of several trade associations, has been reducing to a certainty every quality possessed by gasoline that affects it as a motive power. It is of special interest to the oil industry to know that such a small quantity of gasoline, evaporated under these conditions, produced an explosion so violent as to hurl through the air heavy pieces of machinery and to shatter 10-inch walls.

The Bureau of Standards, it must be understood by people inclined to make inquiries respecting their particular gasoline or engine troubles, only investigates along broad principles and is not in the nature of an information bureau respecting the difficulty that a man has with his particular gasoline, or with his motor. In its present gasoline investigation, the bureau has tried out all varieties of gasoline used in various engines, or at least, it is far advanced in doing that work.

Seek Artificial Fuel

Shortly after this explosion occurred, the writer was informed that the work under way was for the discovery of an artificial fuel to embody the best knowledge that experiment could produce for a fuel made of readily obtainable ingredients in unlimited quantities, and, in fact, looking toward the achievement of an extremely cheap motor fuel which has so often been heralded, but never realized, in any practical test. It was further stated that this series of experiments was entered upon at the request of automobile associations which based their desire to have the Government undertake this work upon their assertion that the Standard Oil Co. had purchased all the patented formulas for an artificial motor fuel and was holding them out of the market because they preferred to continue to deal in gasoline alone with these patented formulas in the background to be used whenever a diminishing supply of gasoline might make the introduction of artificial motor fuel absolutely necessary.

This wonderfully interesting story caused the writer to visit both the United States Patent Office and the United States Bureau of Standards, with the result that no verification was obtainable.

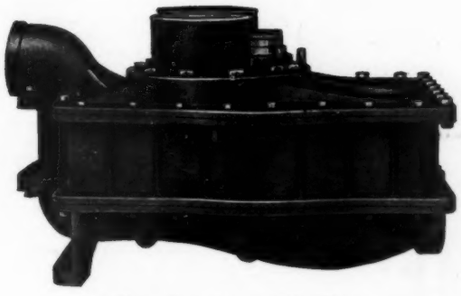
The United States Patent Office has issued about 70 patents relating to artificial fuel, most of which contain some gasoline. The first of these patents was issued in 1909, but most of them are dated from 1915 down to the present time. Assignments of a considerable number of these patents in whole or in part have been made to the United States Industrial Alcohol Co., some to the Chemical Fuel Co., of America, others to the New Jersey Testing Laboratory, and at least one to the Standard Oil Co. of New York.

Many Patents Sought

The United States Patent Office has had a great many applications for patent rights covering some alleged enriching product to be introduced into gasoline, but most of these applications have been rejected because it has been necessary to show the Patent Office examiners just how this enriching element works. Of course, there can be no patent granted

(Continued on Page 96)

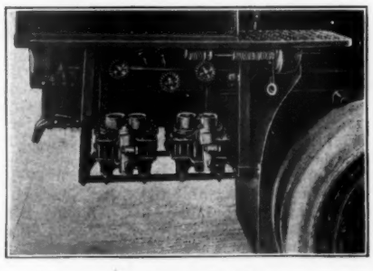
A SUCCESSFUL GASOLINE METER



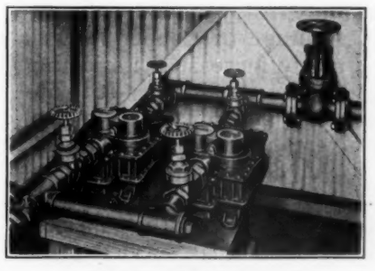
Meter Complete — Side View

THE GRANBERG METER

ACCURATELY **measures** gasoline, distillate, lubricating oil and similar fluids. **Eliminates** all gauge sticks and buckets. **Protects** both seller and buyer. **Operates** on actual displacement principle under varying head and minimum or maximum flow. **Requires** no additional pressure. The simplest meter made — has but three moving parts exclusive of counter.



Showing Installation on Tank Truck



Showing Marine Service Station Installation

Consult with

ASSOCIATED SUPPLY COMPANY

724 Pacific Electric Building,
Los Angeles, California

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San Francisco, California

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GALVANIZED SHEETS
Recognized as the standard of quality since 1864. APOLLO-KEYSTONE Galvanized Sheets with the copper steel alloy base are unequaled for Culverts, Flumes, Silos, Roofing, Siding, Spouting, Gutters, Cornices and all forms of exposed sheet metal work demanding superior rust resistance. Write for Apollo booklet.

Tin Plates
High grade roofing plates, carefully manufactured in all details. Also American Coke and Charcoal Bright Tin Plates.

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SHEET PRODUCTS
American Bessemer Steel Sheets, American Open Hearth Steel Sheets, Keystone Copper Steel Sheets, Automobile Sheets—all grades, Special Sheets for Stamping, Electrical Sheets, Stove and Range Sheets, Japanning and Enameling Stock, Steel Barrel and Keg Stock, Ceiling Sheets, Black Plate, Etc., Etc.

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American Sheet and Tin Plate Company
General Offices: Frick Building, Pittsburgh, Pa.

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Chicago Cincinnati Detroit New Orleans New York Philadelphia Pittsburgh St. Louis
Export Representatives: U. S. Steel Products Company, New York City
Pacific Coast Representatives: U. S. Steel Products Company, San Francisco, Los Angeles, Portland, Seattle

NORTH CENTRAL TEXAS

(Continued from Page 54)

a spudder, sand showing oil at 1,393 feet; Lynch and others' No. 1 Birdwell, drilling at 950 feet; McGee Brothers' No. 1 Richardson, at 405 feet; Norton and others' No. 1 O'Donnell, swedging 8¼-inch casing at 1,115 feet; Oil Investment Co.'s No. 1-B Parrish, drilling at 605 feet; Payne and others' No. 2 Wilmot, at 1,580 feet; Petroleum Producing Co.'s No. 5-C Wilson, at 1,460 feet; Roberts and others' No. 4 Parrish, testing an oil sand at 1,575 feet; Richardson and others' No. 1 Scott, drilling in rock at 1,665 feet; Sixty-Six Oil Co.'s No. 1 Wilson, standardizing on top of an oil sand at 1,573 feet; Smith and others' No. 1 Wilson, running tubing, sand showing oil at 1,392 feet; No. 2 Wilson, bailing and testing an oil sand at 1,595 feet; Staley and others' No. 1-C Wilson, drilling at 1,355 feet; Sunshine State Oil & Refining Co.'s No. 9 Carter Brothers at 1,205 feet; Swastika Oil Co.'s No. 7 Richardson, bailing an oil sand at 1,365 feet; No. 9 Richardson, drilling at 1,005 feet; Veryschoyle and others' No. 1 Wilson, shut down on top of an oil sand at 1,400 feet; Dr. Wallace's No. 8 K. & K., drilling at 1,595 feet; Whitehead and others' No. 1 Kukel, underreaming 8¼-inch casing at 1,365 feet.

Young County

Completions: Mitchell and others' No. 1 Hightower, dry at 1,508 feet; Shamrock Oil Co.'s No. 2-A Bower, 30 bbls. at 1,560 feet.

Drilling: Gulf Production Co.'s No. 2 Hockaday, fishing job at 3,395 feet; Holcomb and others' No. 1 Bullock, drilling at 650 feet; McGuire and others' No. 1 Carter, underreaming 10-inch casing at 1,575 feet; Mid-Kansas Oil & Gas Co.'s No. 1 Gibson, drilling at 3,350 feet; No. 1 Moren, fishing at 1,165 feet; Dudley Miller's No. 2 Hughes, drilling at 1,290 feet; Robinson and others' No. 1 Grubbs, drilling in shale at 1,405 feet; Snowden & McSweeney's No. 1 Carter, underreaming 10-inch casing at 1,475 feet; Stovall and others No. 1 Stovall, drilling in blue shale at 2,105 feet; Whitehead and others' No. 1 Johnson, lost part of a string of 5-inch casing and fishing, total depth 4,249 feet.

Stephens County

Completions: Benson & Spurck's No. 1 Black, dry at 3,730 feet; M. & M. Oil Co.'s No. 1 Bruce, 100 bbls. at 2,105 feet; Miller Brothers' No. 1 Boyett, 320 bbls. at 3,640 feet.

Drilling: Corts and others' No. 1 Parks, dry sand at 3,870 feet, will probably plug and abandon; Critten and others' No. 1 Cobb, drilling at 1,150 feet; Curry Pool Oil Co.'s No. 1 Jones, at 2,505 feet; Equity Petroleum Co.'s No. 10 Childs, drilling in lime and shale at 3,105 feet; Humble Oil & Refining Co.'s No. 6 Jones, drilling at 3,160 feet; No. 1 Wild, drilling at 1,825 feet; Killion Production Co.'s No. 1 Brown, an old well, waiting for cement to set before drilling deeper at 3,135 feet; Lacy and others' No. 2 Lee, pumped 20 bbls. of oil, then started making water and is shut down at 1,640 feet. Landreth and others' No. 1 Ward, drilling in gray lime at 3,015 feet; M. & M. Drilling Co.'s No. 1 School Block, drilling by tools at 3,260 feet; Magnolia Petroleum Co.'s No. 2 George, drilling at 2,110 feet; No. 12 McCauley, shut down at 3,205 feet; No. 12 Rush, drilling at 538 feet; No. 4 Walker, spudding at 130 feet; Mahlstedt Mook's No. 1 Boyett, drilling at 455 feet; No. 1 Bruce, at 1,605 feet; Republic Production Co.'s No. 3 Jones, cleaning out at 3,807 feet; Royal Palm Oil Co.'s No. 1 Newham, fishing for a bit at 3,030 feet; Scott and others' No. 1 Davis, drilling on a second hole at 305 feet; Swensondale Oil Co.'s No. 29 Swenson, drilling in brown shale at 2,605 feet; Texas & Pacific Coal & Oil Co.'s No. 8 Newell, drilling by tools at 4,045 feet; The Texas Co.'s No. 19 Black Brothers, cleaned out to bottom at 4,027 feet.

Completions: Gulf Production Co.'s No. 1 Pierce, 8 bbls. at 3,390 feet.

Drilling: Ablon and others' No. 1 Cowen, drilling at 1,155 feet; Brothers Oil Co.'s No. 2 Rogers, at 2,375 feet; Clayton and others' No. 2 Jones, shut down, will set 8-inch casing before drilling deeper at 2,280 feet; Donnelly Brothers' No. 1 Allen, shut down for 6-inch casing at 3,105 feet; Gordon Petroleum Co.'s No. 1 Ray, second hole, resetting 6-inch casing at 2,640 feet; Lone Star Gas Co.'s No. 1-A McMillan, drilling in shale at 2,505 feet; Magnolia Petroleum Co.'s No. 3 Ross, drilling at 505 feet; No. 2 Wright, at 2,555 feet; Mid-Kansas Oil & Gas Co.'s No. 5 Harrell, fishing for tools at 3,365 feet; Post-Duke Oil Co.'s No. 2 Abernathy, drilling at 905 feet; Rosenfield and others' No. 1 Burnett, drilling by tools at 1,610 feet; Edward Stone's No. 1 Ray, drilling at 865 feet; Andy Urbin's No. 1 Neville, drilling in blue shale at 2,355 feet; Wolf and others' No. 1 Walker, drilling at 510 feet.

Wildcats

Brown County: Completions — Stone and others' No. 1 Triplett, dry at 1,450 feet.

Drilling: Carlton and others' No. 1 Fomby, fishing at 3,180 feet; Hart and others' No. 1 Ewing, topped the Ranger lime and shut down for casing at 2,360 feet; Phillips Petroleum Co.'s No. 2 Newton, has 40 bbls. production, cleaning out a bridge after a shot, will run 5⅛-inch casing before drilling deeper at 3,000 feet.

Callahan County: Drilling — Byron Union Oil Co.'s No. 1 Hennessy, fishing for pipe at 3,710 feet; Nourse and others' No. 1 Isenhower, estimated 30 bbls. production at 1,774 feet.

Mitchell County: Drilling—California Co.'s No. 1 Morrison, drilling at 3,905 feet; Colo-Tex Petroleum Co.'s No. 2 Foster, fishing for bailer at 2,624 feet; Henry Reilly's No. 1 Morrison, cementing 6-inch casing, water broke in at 2,955 feet; Sloan and others' No. 1 O'Neill, drilling in hard lime at 2,595 feet; Thompson and others' No. 1 Baggett, topped a sand at 3,040 feet; showing for around 25 bbls., moving the boiler back; Underwriters Producing & Refining Co.'s No. 4 Morrison, drilling in shale at 2,590 feet.

Palo Pinto County: Completions — Owen & Burkett's No. 1 Carey, 1,500,000 feet of gas at 4,785 feet; Magnolia Petroleum Co.'s No. 2 Edison, 100 bbls. at 2,845 feet.

Drilling: Bankhead and others' No. 1 Bankhead, skidded rig No. 1 test, drilling second hole at 80 feet; Clark and others' No. 1 Conklin, fishing for 6-inch casing at 3,915 feet; Jack Dalton Oil Co.'s No. 5 Dalton, drilling in lime at 3,510 feet; Graham and others' No. 1 Candill, drilling in a sand and shale formation at 2,300 feet; Moore & Snebold's No. 1 Boles, showing 7,000,000 feet of gas with 1,100 pounds rock pressure at 3,265 feet; Mutual Oil Co.'s No. 1 Robinson, showing some gas and drilling at 1,435 feet; Scott & McClure's No. 1 River Bed, has 800 feet of oil in the hole and shut down at 3,580 feet; Singleton and others' No. 1 Holt, shut down for 8-inch casing at 1,665 feet; Thomas and others' No. 1 Thomas, drilling up a bailer at 1,350 feet; Upham Gas Co.'s No. 3 Ritchie, drilling at 2,805 feet.

Reagan County

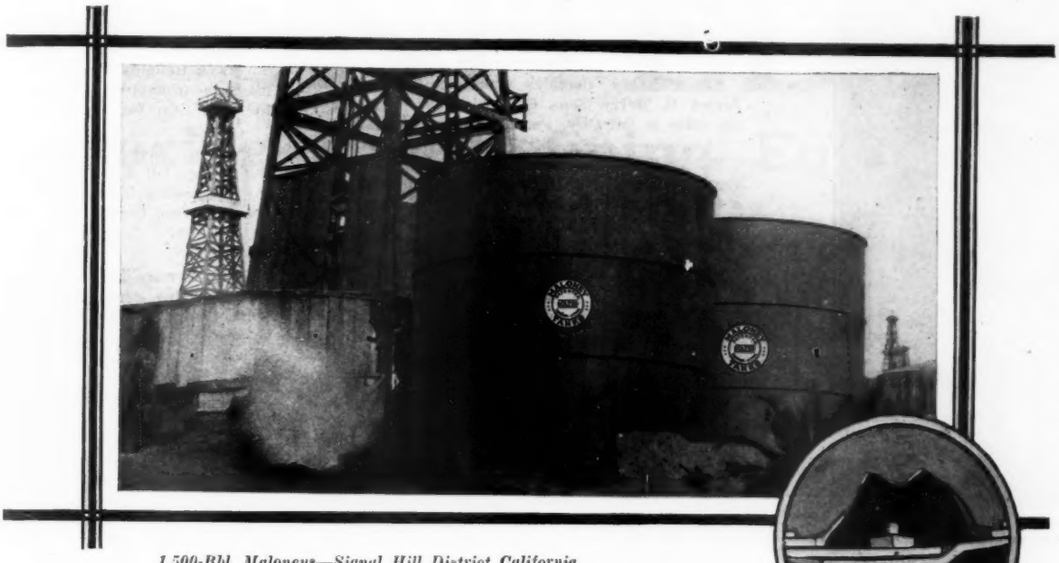
Drilling: Texon Land & Oil Co.'s No. 1 University, shut down repairing boiler, at 3,025 feet; No. 2 University, shut down waiting on drilling line at 2,666 feet; No. 3 University, drilling in red beds at 425 feet; No. 2 University, Section 6, will be abandoned at 615 feet.

Surry County: Drilling—Camp Springs Oil & Gas Co.'s No. 1 Quinn, shut down for 8-inch casing at 2,030 feet; Lou-Tex Oil Co.'s No. 1 Moore, drilling in hard gray lime with light show of oil around 3,200 feet.

Shackelford County: Completions — Murphy & Bolanz' No. 2 Conrad, dry at 3,965 feet.

Drilling: Landreth Production Co.'s No. 2 Lynch, casing trouble at 3,490 feet; Texhoma Oil & Refining Co.'s No. 3 Black, drilling at 1,705 feet.

(Continued on Page 78)



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Patented Crimped Offset Seams and Joints

They Are Made of KEYSTONE COPPER STEEL RUST-RESISTING

Give You Efficient Crude Storage

Accurately manufactured of Keystone Rust Resisting Copper Steel, the Maloney Patented Bolted Steel Tank furnishes the producer with long life storage and can be easily taken down and reset at minimum cost.

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MALONEY TANK MANUFACTURING CO.

Office and Factory—**Tulsa, U. S. A.**

Modernly equipped Export Department gives prompt and dependable service. Tanks, knocked down, securely packed in steel-bound crates, easily handled at port

Do not fail to visit our Exhibit, Booth D-23

Drilling: Ablon and others' No. 1 (Continued on Page 78)

MEN KNOWN IN OILDOM

Norwood Johnston

Norwood Johnston was born at Freeport, Pa., September 13, 1864, and received his education in the public schools at that place. He went with his father to Cherry Grove when "646" was the stellar attraction in the eastern fields. In 1883 he joined the Fisher Brothers at Thorn Creek, Butler County, Pennsylvania, and was present and took part in the development of that huge field.

Later he became connected with the Manufacturers Light & Heat Company, operating in Washington County. After 12 years of service with this company, he joined the Carnegie Natural Gas Company, and was elected vice president and general superintendent. He remained with this company 22 years, resigning six years ago to take hold and develop his personal interests.

As an individual operator he has been very successful, having operated in Pennsylvania, Ohio, Texas, Oklahoma, Wyoming and Kentucky. In the last named State he has drilled more than 200 wells and has a large production. Mr. Johnston resides at 1081 Shady Avenue, Pittsburgh, and has offices in the Union Arcade Bldg., Pittsburgh, Pa.

PERSONAL PARAGRAPHS

Mr. and Mrs. Thomas McCort have left Petrolia, Ont., for the fields of Trinidad, South America.

* * *

Jack Becker, representing the Bridgeport Machine Company, of Wichita, Kans., was in Tulsa on business during the past week.

* * *

Water Mount, of the Mount-Cooper Boiler & Iron Company, Tulsa, Okla., is visiting his mother, Mrs. Anna Mount, of Oil City, Pa.

* * *

E. L. Robinson, of the Allied Refining Company, has returned to his office in Tulsa after an extended fishing trip in Baldwin, Mich.

* * *

J. W. Young, Jr., president of the Young Oil Company of Fayetteville, Tenn., is looking over the Warren County, Kentucky, Field.

* * *

Frank C. Adams, scout for the Waite Phillips Company in the Okmulgee district, spent several days in the Tulsa office recently.

* * *

Earl C. Lane, assistant chemist for the United States Bureau of Mines, was in Los Angeles during the past week on official business.

Mel Shugart, in charge of operations for the Sinclair Oil Company, was in Shreveport, La., last week on business for the company.

* * *

S. J. Lones, of the Southwestern Petroleum Company's Tulsa office, has been inspecting operations of the company in the Hewitt Field.

* * *

Richard Estell is now able to return to his duties with the Colono Manufacturing Company, with offices in the Vandergrift Building, Pittsburgh.

* * *

Frank Berry, domestic sales manager for the James B. Berry Sons Company, has returned to his office in Oil City, Pa., after a vacation trip.

* * *

W. T. Young, proprietor of the Young Drilling Engine Company, of Oil City, Pa., has returned from a trip through Ohio in the interests of his firm.

* * *

E. V. Newkirk, commander-in-chief of the Indian Pipe Line Company of Lawrenceville, Ill., is in Bowling Green, Ky., in interest of his company.

* * *

H. W. Marker, of the service department of the Landis Machine Company of Waynesboro, Pa., has been spending several days in the Tulsa territory.

* * *

Dishman K. Stephens, of Neodesha, Kans., manager for the Union Gas & Fuel Company, has resigned to enter business for himself in Kansas City, Mo.

* * *

P. A. Conway, commerce counsel and traffic manager of the Western Refiners Association, is moving the traffic offices of the association from Kansas City to Tulsa.

* * *

H. B. Robinson, retired engineer of the Southern Group of Pipe Lines, of Oil City, Pa., visited Philadelphia last week and stopped over in Pittsburgh on his return.

* * *

P. J. Moran, Shreveport tank man, well known in the Texas and Louisiana fields, is spending a vacation on the Gulf at Galveston. He is accompanied by Mrs. Moran.

* * *

Fred Webb of Petrolia, Ont., has been appointed superintendent of drilling for the Tropical Oil Company, and will leave for the Colombian fields of South America soon.

* * *

Mr. and Mrs. Harry H. Smith of Tulsa, are the parents of a baby girl, born at the home last week. Mr. Smith is the secretary of the Mid-Continent Oil & Gas Association.

* * *

F. D. Williams, president, and N. A. Newton, sales manager, of the National Transit Company of Oil City, Pa., are spending a few days in Casper, Wyo., looking over the situation.

* * *

Lorne Nichol has been appointed field manager of the Southern Ontario Gas Company at Leamington, Ont., succeeding W. Scratch, killed recently in an automobile accident.

* * *

C. P. Davis, Bristow, Okla., operator, with Mrs. Davis, is spending several days taking radium water treatment at Claremore, Okla., following his recovery from a recent illness.

* * *

H. A. Meyer, assistant to the vice president and general manager of the Prairie Oil & Gas Company, Dana H. Kelsey, left Tulsa last week for his new home in Independence, Kans.

* * *

Lansing McVickar, petroleum engineer of New York City, is in Casper looking over the Wyoming fields and examining the resources of some of the larger firms interested in this region.

* * *

T. B. Gregory, president of the Manufacturers Light & Heat Co., has returned to his office in the Colonial Bank Building, Pittsburgh, Pa., after several weeks' vacation in the lake region.

* * *

Robert Manning, head gauger for the Prairie Pipe Line Company in the Bristow, Okla., district, has been put in charge of the district during the absence of W. O. Paul, who is on his vacation.

Daniel Danker and J. A. Lewis, of Casper, Wyo., were two oil men on the Burlington train that went into Cole Creek recently. Both escaped and are in Casper awaiting the resumption of service.

* * *

W. C. Hill, petroleum economist of the United States Bureau of Mines, has been making a survey of the Los Angeles basin country, before leaving for the Mid-Continent territory on official business.

* * *

Frank Miller, former head driller for the Producers & Refiners Corporation in the Ferris Field, has been promoted to superintendent of field work for that firm for the southern Wyoming district.

* * *

Fred R. Parks, of the scouting department of the Cosden Oil & Gas Company, has been assigned to the Holdenville district. Fred Hill, who has been scouting that district, takes Mr. Parks' place in the office.

* * *

D. C. Stewart of Dallas, Tex., general manager of the pipe line department of the Magnolia Petroleum Company, has returned to his desk after a two months' vacation at the summer resorts in the North and East.

* * *

Allen T. Towl, vice president and general manager of the Southern Group of Pipe Lines, attended a meeting of the Eureka Pipe Line Company in Oil City, Pa., last week, stopping over for a few days at the Pittsburgh offices.

* * *

A son was born to Mr. and Mrs W. H. Gaither recently. The father is district manager for the National Pump & Machine Company, with headquarters in Houston. Mr. and Mrs. Gaither are former residents of Erie, Pa.

* * *

Mr. and Mrs. J. E. Doman of Clarksburg, W. Va., passed through the Big Horn Basin and are now in Casper, Wyo., awaiting the resumption of service on the railroads there. Mr. Doman is interested in oil lands in the Big Horn Basin.

* * *

The district offices of the Prairie Oil & Gas Company at Eastland and Wichita Falls, Tex., have been consolidated at Eastland under E. G. Schreck, following removal of W. B. Sutton, formerly in charge there, to Tulsa, as assistant superintendent of the land department.

* * *

R. S. Ellison and T. A. Dones, officials of the Midwest Refining Company, have reached Casper, Wyo., after an extended trip through the Wind River Mountains in search of elk. The hunters report a wonderful lot of game, having seen moose, elk and bear in abundance.

* * *

Keith Crouse, former secretary to H. A. Meyer, in the Tulsa offices of the Prairie Oil & Gas Company, has been promoted to the position of cashier for the Tulsa organization, replacing K. O. Bundy, who has been acting in that capacity. Mr. Bundy returns to Enid to assume his duties as lease man in that district.

* * *

Mark U. Weber of Casper, Wyo.; H. C. and J. B. Weber of Bartlesville, Okla., left Riverton, Wyo., for the Wind River Mountains recently and will spend several days in the range hunting elk, deer and big horn sheep. They will have headquarters at the Weber cabin, known as Rocky Mountain Lodge, near the crest of the Continental Divide.

* * *

E. J. Schreck of Wichita Falls, Tex., who has been appointed successor of W. B. Sutton, in charge of the land department of the Prairie Oil & Gas Company at Eastland, has arrived at that city and has taken over his new assignment. The Wichita Falls office of the Prairie Company of which Mr. Schreck has been in charge has been abolished.

* * *

S. Namumro, vice president of the Orange Petroleum Company, left this week for Japan to search for his family, whom he fears perished in the recent earthquake. K. Kishi, of the Kishi Development Company and the Orange Petroleum Company, has thus far failed to hear from his brother, Dr. H. Kishi, who was visiting in Tokio at the time of the earthquake.

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Producing and Refining Equipment

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"United" 10 x 40 Standard

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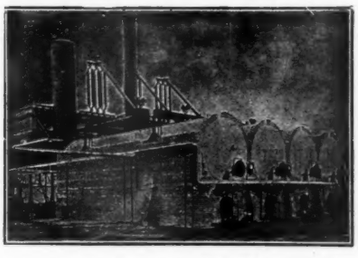
Refinery Equipment



We offer a complete service in the erection of refineries—or can supply you with any or all the equipment you need. Many successful refinery installations bespeak the high quality of "United" Refinery Products and the care with which erection was handled.

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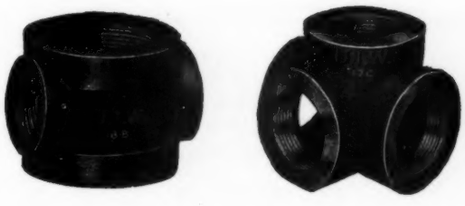

"United" Standard, Extra Heavy, Hydraulic and Extra Heavy Hydraulic, Flanged and Threaded, 125 to 250 lbs. working pressure, Cast Iron Fittings have fully demonstrated their value and true economy. Send for special Bulletins.

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"When Better Construction is Offered, it Will Be 'United' Design"

"UNITED" IRON WORKS INC. FOR SERVICE

Crude and Refined Price Relationship

Suggestion Based on Gasoline Percentage Offered for Consideration of the Industry as Solution of Problem.

By Clive M. Alexander *
General Manager, Texas Oil Products Co.

The present petroleum situation has resulted in a very unstable industry. There is no relation at the present time and there has been very little relationship in the past between the price factors which should control this industry. There should no doubt be a definite relationship between crude prices and the refined products obtained therefrom. Through the classification of crudes on their gravity basis an attempt was made to obtain a better price basis for crudes which somewhat adjusted them to their refining value. This gravity basis was probably taken rather than a percentage refined products basis since it was more easily to determine and check in the ordinary field practice. The ideal basis, however, would naturally be based on the percentage of that particular refined product, gasoline, which more nearly controls the price fluctuations in the petroleum industry at the present time.

A table of crude prices and refined products prices, not including lubricating oils, has been calculated and is offered as a suggestion for a basis of price relationship between crude and refined products. This table is more particularly based on the gasoline percentage, although crude gravities under present classification are shown. Were all the crudes throughout the United States similar to Oklahoma and North Texas crudes with reference to paraffin and asphalt or naphthene base contents they could readily be classified in one table on the gravity basis, but owing to the difference in quality of the different crudes in the different fields the percentage basis is more generally applicable.

CLASSIFIED CRUDE PRICES
Gasoline Percentage or Crude Gravity Basis

Percentage Gasoline											Gravity ° Baume
Above 40	$3.60	$3.32	$3.04	$2.76	$2.48	$2.20	$1.92	$1.64	$1.36	$1.08	$0.80	41/
36	3.40	3.13	2.86	2.59	2.32	2.05	1.78	1.51	1.24	.97	.70	39/41
32	3.20	2.94	2.68	2.42	2.16	1.90	1.64	1.38	1.12	.86	.60	37/39
28	3.00	2.75	2.50	2.25	2.00	1.75	1.50	1.25	1.00	.75	.50	35/37
24	2.80	2.56	2.32	2.08	1.84	1.60	1.36	1.12	.88	.64	.40	33/35
20	2.60	2.37	2.14	1.91	1.68	1.45	1.22	.99	.76	.53	.30	31/33
16	2.40	2.18	1.96	1.74	1.52	1.30	1.08	.86	.64	.42	.20	29/31
Under 16	2.20	1.99	1.78	1.57	1.36	1.15	.94	.73	.52	.31	.10	/29

PRICES OF REFINED PRODUCTS*
F.O.B. Refinery

Gasoline	.17	.16	.15	.14	.13	.12	.11	.10	.09	.08	.07
Kerosene	7⅛	6⅛	6	5⅞	4¾	4⅛	3½	3	2⅝	1⅝	1¼
Gas oil	5⅝	5¼	4¾	4⅛	3⅝	3⅛	2⅝	2⅛	2	1⅝	1
Fuel oil	2.10	1.93	1.75	1.58	1.40	1.23	1.05	.88	.70	.53	.35

*Base crude 28 per cent gasoline or 35/37° Baume gravity. Gasoline New Navy specification. Kerosene price equals 100 per cent of crude price. Gas oil price equals 80 per cent of crude price. Fuel oil price equals 70 per cent of crude price.

Equation

X+$0.30+$0.203+$0.035Xb + $0.10 = ZY+. $0.20Xb+$0.12Xb+(.64-Z).7Xb.

X/bbl. crude=crude price (no premium).

$0.30/bbl. crude=gathering and transportation.

$0.203/bbl. crude=fixed operating and overhead costs (not including fuel).

$0.035Xb/bbl. crude=operating fuel cost (0.035Xb is 5 per cent of 70 per cent of the base crude price Xb).

$0.10/bbl. crude=net earning.

ZY/bbl. crude=gasoline value (F.O.B. refinery) (Z is the gasoline percentage in crude and Y the gasoline price).

$0.20Xb/bbl. crude=kerosene value (F.O.B. refinery) (assumed 20 per cent kerosene in all crudes).

$0.12Xb/bbl. crude= gas oil value (F.O.B. refinery) (assumed 15 per cent gas oil in all crudes) (0.12Xb is 15 per cent of 80 per cent of the base crude price Xb).

(0.64-Z).7Xb/bbl. crude=fuel oil value (F.O.B. refinery) (0.64-Z).7Xb is the percentage of fuel residue in the crude times 70 per cent of the base crude price Xb).

X=ZY—.72Xb+.733Xb—$0.603.

X=Value of crude in question per bbl.

Xb=Price of base crude per bbl.

Y=Price of gasoline per bbl.

Z=Percentage of gasoline.

Analysis

Crude price: This is classified and based either on the percentage gasoline content or on the Baume' gravity of paraffin base crudes as represented by the average Mid-Continent crudes. The 28 per cent gasoline crude is taken as the base crude and is represented very closely by the average pipe line crude stock of 35 to 37 degrees Baume gravity.

Gathering and transportation: This approximates the average cost per barrel of crude for gathering and transportation by pipe line and railroad to the refinery.

Fixed operating and overhead costs:

Operating labor, $0.019; repairs (labor and material), $0.008, 2 per cent of investment*; lights and power, $0.009, lights $0.001, pumping water power $0.008; chemicals, $0.020, acid, caustic, etc.; works office expense, $0.010; depreciation, $0.039, 10 per cent of investment*; insurance, $0.005; taxes, $0.005; tank cars $0.070, 6 per cent interest, 5 per cent depreciation, $5.00 per car per month repairs, investment $2,500 per car; or rental $28 per month mileage and repairs to owner, $12 mileage per car per month, tank cars for refined products only; administrative and sales expense, $0.018; total, $0.203.

*It is assumed $200 per bbl. crude charging capacity is a fair average for capitalization chargeable to the refinery; 20 per cent being allowed for financing, 10 per cent for operating capital, and 70 per cent or $140 per bbl. for refinery investment. These figures are based on a 5,000-bbl. per day crude skimming plant.

Operating fuel cost: It is estimated the average skimming plant requires for its operation fuel in quantity equal to 5 per cent of the crude charged. This includes 3 per cent for skimming, 1 per cent for re-running, 1 per cent for pumping, heating and losses based on 40 per cent heating efficiency of stills skimming 63 per cent overhead. These percentages include total fuel for firing direct and for steam generation.

Net Earning

Net earning: A net earning of 10 cents a barrel is allowed under the conditions specified for skimming plant operation only. Skimming plants located near producing fields with gathering and transportation charge averaging 15 cents could realize a net earning of 25 cents a barrel of crude charged. Plants, therefore, initially installed near fields and operated as skimming plants would be forced to discontinue operations when the gathering and transportation charges were much above 30 cents a barrel or expand through the installation of lubricating and cracking plants for the realization of profits.

Gasoline price and percentage: The gasoline price and percentage are the controlling factors in fixing the price of crude and other refined products. The price of gasoline is f.o.b. refinery and ranges from 7 cents per gallon to 17 cents per gallon, charging 1 cent per gallon for each 25 cents ber barrel charge in the base crude price.

Kerosene price and percentage: It is estimated that 20 per cent is a fair average yield for kerosene from all crudes and since its price is taken as 100 per cent of the base crude price there would be little change in results for either 15 per cent or 25 per cent yields. The price of kerosene is f.o.b. refinery in cents per gallon as shown in the table varying with the base crude price.

Gas oil price and percentage: It is estimated that 15 per cent is a fair average yield for gas oil from all crudes and that its average market price f.o.b. refinery should be 80 per cent of the base crude price. This is a somewhat higher price than past average but, due to present and future demand for cracking stock, a slight increased price should prevail. The fixed price per gallon for gas oil f.o.b. refinery is shown in table.

Fuel oil price and percentage: A good average price for fuel oil would be 70 per cent of the base crude price as shown in table which is somewhat higher than in the past, yet, owing to increased future demands as cracking stock, the prices shown will more nearly prevail.

The prices for kerosene, gas oil, and fuel oil f.o.b. refinery, 100 per cent, 80 per cent and 70 per cent of the base crude price respectively, may require changing as refining progresses in converting the heavier and cheaper oils into gasoline. This simply involves an adjustment of the percentage ratio to the base crude price. A better average in another year might be for kerosene, gas oil, and fuel oil prices 120 per cent, 95 per cent and 80 per cent of the base crude. This would only change the crude prices by a constant figure for each column and the table would be thereby adjusted as required by refinery practice.

Readily Adjustable

The table worked out in this paper applies especially to Mid-Continent crudes and refined products. It, however, can be readily adjusted to meet the differential transportation costs and differences in crude and refined products for other sections of the United States. For example, crude and refined products tables could be made out for the Pennsylvania, Wyoming and California sections of the United States.

It is pointed out that in the above table no allowance is made for the payment of premiums. This should be considered in the light that those refiners who find it necessary to pay premiums must discount their transportation costs by more advantageous location of the refinery or through the installation of more complete operating equipment such as cracking and lubricating plants.

If such a basis for crude and refined products could be established and found practical from the well to the service station these prices would then be controlled solely by supply and demand. Either an over supply of gasoline or an over production of crude would effect in the same ratio the price of all crudes and their products from the well to the service station. There would exist a condition wherein competition would not be a question of price setting but would result mainly in a question of competition on the basis of quality and service which, although ideal, may never become practical. Further, owing to the fixed relationship of crude prices and refined products and the present generally established fixed margins for the tank wagon and service station, there would be a far greater tendency toward margin contracts instead of spot purchases. Ultimately we would approach a solution which, if it could be practically regulated and controlled by the various organizations of the petroleum industry would certainly result in a situation more pleasing and more remunerative to the investor and our whole petroleum industry earnings would be more nearly representative of organization, efficiency and knowledge of the business rather than manipulation and knockout competition.

PETROLEUM PRODUCTION IN PERU

Secretary of the Peruvian Embassy Addresses International Petroleum Congress on Legislation Affecting Oil Concessions. Declares His Country Welcomes and Guarantees Foreign Capital

By Dr. Santiago F. Bedoya
Secretary of the Peruvian Embassy and Representative of the Peruvian Government to the International Petroleum Exposition and Congress, Tulsa, Okla.

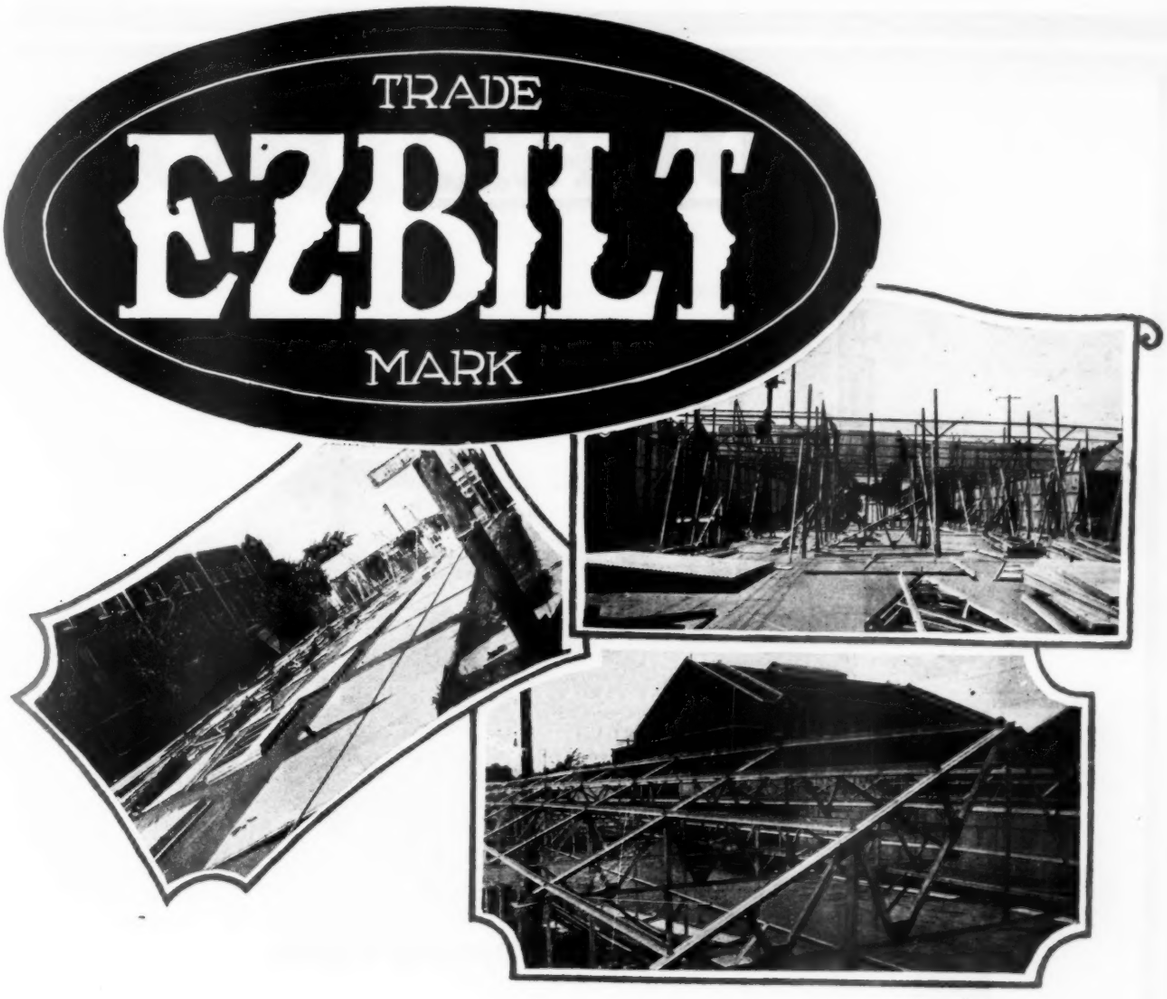
For America, and especially for South America, the subject of petroleum fuel is not so much one of world wide but rather of continental importance, and as for my country, petroleum is of paramount importance, for upon it hinges its future economic independence, once the enormous deposits are worked the existence of which is today barely guessed at.

Peru, whose superfices is equal to that of the States of Texas, Arizona, Nevada and Utah combined, is divided into three well defined geographical regions: the Coast, of a varying depth of from 20 to 80 miles; the Highlands of the Andes, and third, the vast tropical region termed "Montana," scarcely explored and which extends to the east of the Andes. Peru, generally speaking, is a tropical country, basking in brilliant sunshine. Along the Coast, for more than 1,500 miles, it hardly ever rains.

The presence of petroleum is known along the whole coast, barely a few miles inland, from north to south, on our high tablelands and in our mountain ranges. Mr. Doustua, a Peruvian engineer, who has specialized in this product, states none shows a more promising future than the oil industry still, in its infancy.

The Incas made use of "a certain mortar or cement in their buildings, composed of gypsum, gravel and pitch," while the Indians of Lake Titicaca lighted their ceremonies by a bundle of wool steeped in the liquid petroleum found flowing from between certain rocky formations in that region. The Spaniards made use of a thick substance, "pez" or "copey,"—pitch or bitumen—which was no other than tar or the residuum of petroleum found covering great superfices of a district in one of the northern provinces named La Brea, from this same substance. The Spaniards employed it to paint the bottoms of their ships and to varnish the earthenware vessels and wooden barrels. In 1860 refined petroleum was imported for the first time in Peru. This fact greatly

(Continued on Page 99)



When the Housing Problems Came up

In connection with the International Petroleum Exposition and Congress

BRADEN built Sectional Steel Buildings were contracted for because of their flexibility, high salvage value and low cost. The buildings had to be erected within a short time and this process of erection, covering fifty thousand square feet of floor space, was accomplished in TWO WEEKS —four days earlier than the contract specified.

While visiting the Exposition—E-Z-BILT Sectional Steel Buildings will shelter YOU as well as the Exhibitors.

INTERNATIONAL PETROLEUM EXPOSITION AND CONGRESS
TULSA-OKLAHOMA
OCT. 8 TO 14 1923

September 27, 1923.

The Braden Company,
Tulsa, Oklahoma.

Attention: J.G. Michaelson,
General Manager.

Gentlemen:

Please consider this our acceptance of the E-Z-Bilt Sectional Steel Buildings built to house the International Petroleum Exposition and Congress.

We wish to acknowledge our appreciation of the prompt and efficient manner in which you have handled this immense building program.

Yours very truly,

Edward F. McIntyre, General Manager,

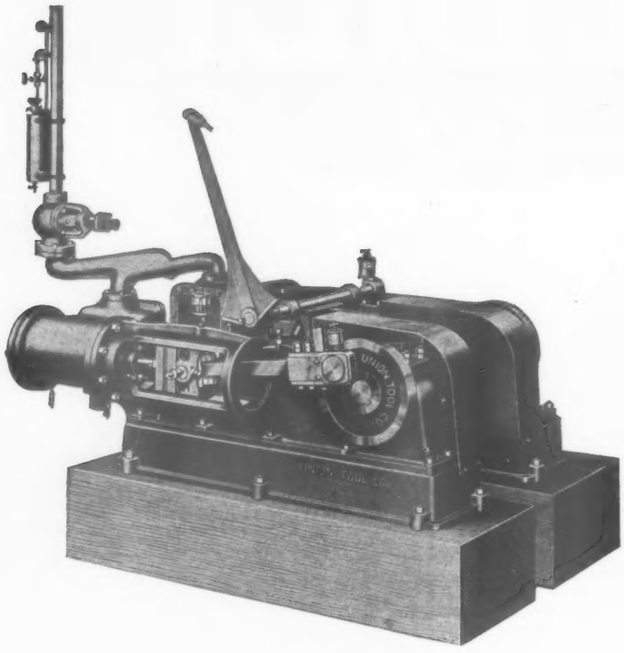
INTERNATIONAL PETROLEUM EXPOSITION.

EFMcI-M

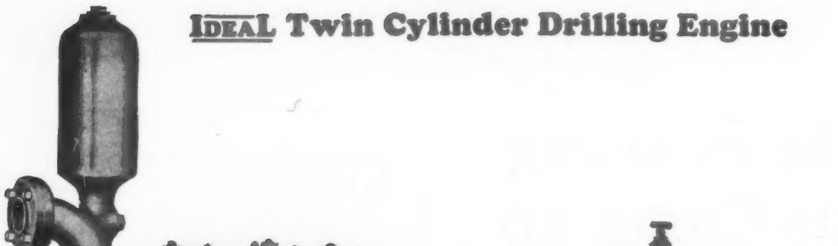
THE BRADEN COMPANY

TULSA OKLA.

IDEAL ROTARY



IDEAL Twin Cylinder Drilling Engine



IDEAL Duplex Slush Pump

IDEAL Type "GS" S

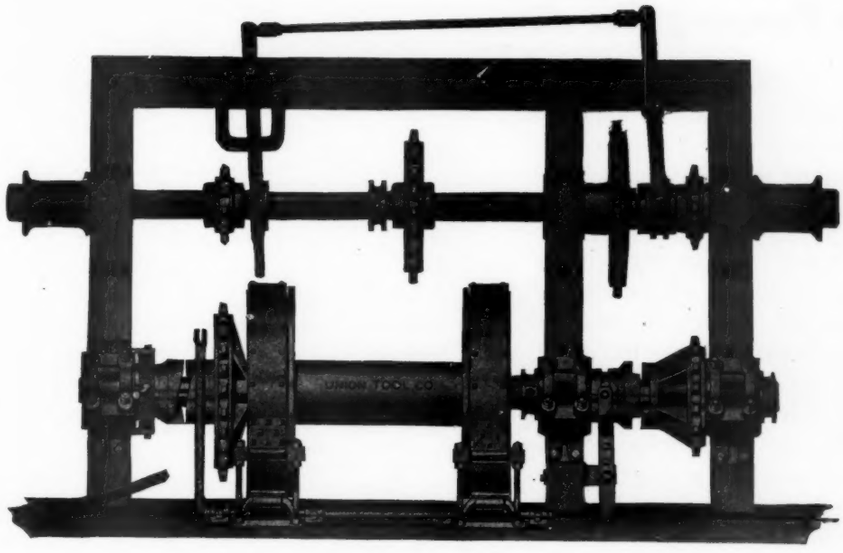
Built for spe
heavy duty,
Rotary Equipm
duces drilling
a minimum.

NSCO

THE NATIONAL SUP

RY EQUIPMENT

Typ GS" Swivel



No. 5 IDEAL Draw Works

for speed and
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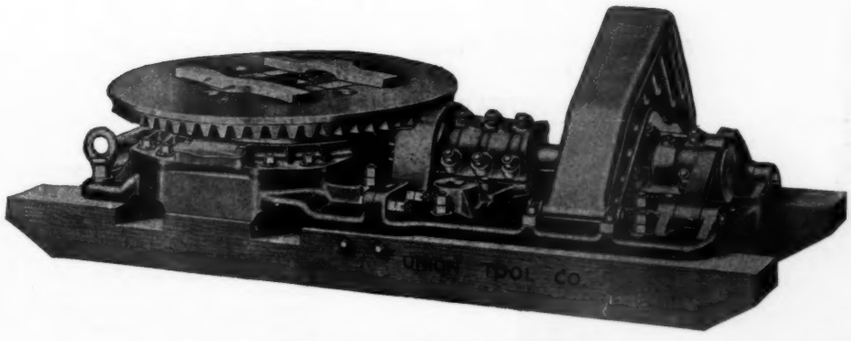


No. 10 IDEAL Rotary

SUPPLY COMPANIES

NSCO

ROOTS
Rotary Pumps
For Pumping Gasoline

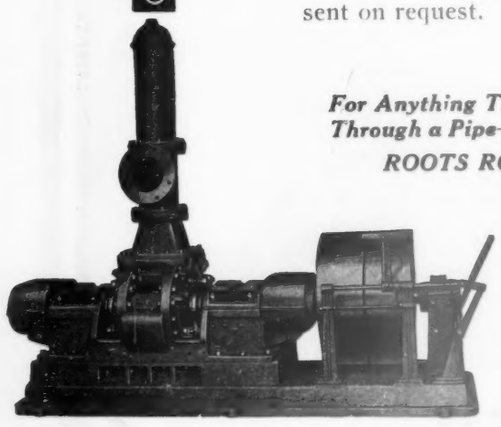
ROOTS Rotary Pumps are particularly adapted to pumping gasoline because they require no internal lubrication.

The only moving parts in the case are the two impellers. A clearance of a few thousandths of an inch separates the impellers from each other and from the case. The only wearing parts are the bearings. Stuffing boxes that are really leakproof separate the bearings from the case.

Because there are no moving parts to wear out and be replaced, continuous operation of the pumps is possible without danger of shut down and it is not necessary to carry an expensive stock of repairs.

Engineering data on specifications, sizes and capacities of Roots Rotary Pumps will be sent on request.

For Anything That Flows Through a Pipe—
ROOTS ROTARY PUMPS



The P.H.& F.M. ROOTS CO.
DEPT. 18
CONNERSVILLE, IND.
Chicago Office 128 S. Michigan Ave.
New York Office Room 808-120 Liberty St.

NORTH CENTRAL TEXAS

(Continued from Page 70)

Coleman County: Completions—Ambercrombie's No. 1 Thompson, 1,500,000 feet of gas at 1,070 feet.

Baylor County: Drilling—Waggoner and others' No. 1 Portwood, drilling at 1,345 feet; Wurtz and others' No. 1 Porter, drilling at 925 feet.

Clay County: Completions—Lone Star Gas Co.'s No. 6 Edrington, dry at 2,588 feet; same company's No. 5 Panhandle Co., 170,000 feet of gas at 1,550 feet; same company's No. 12 Miller, 1,500,000 feet of gas at 1,435 feet; same company's No. 13 Miller, 2,000,000 feet of gas at 1,435 feet.

Drilling: Dunning and others' No. 1 Hapgood, underreaming 6⅝-inch casing at 3,050 feet; Gulf Production Co.'s No. 1-A Boddy, carrying 8¼-inch casing at 1,770 feet; Knox & Finley Development Co.'s No. 1 Scott, sand at 1,155 feet; shot with 5 quarts, pipe collapsed; Lone Star Gas Co.'s No. 7 Edrington, drilling at 1,505 feet; Nebraska Oil & Gas Co.'s No. 1 Myers, fishing for tools at 3,280 feet; Moore & Walker's No. 1 Hull, coring a sand at 1,140 feet; Ross and others' No. 1 Stein, coring a sand at 910 feet.

Montague County: Completion — The Texas Co.'s No. 1 Howard, dry at 1,183 feet.

Drilling: The Texas Co.'s No. 1-A Gist, changing master gate and connections at 580 feet; the Amerada Oil Corp. No. 1-A Beasley, underreaming 8-inch casing at 2,480 feet; Gulf Production Co.'s No. 1 Benton has hole full of water, set 10-inch casing at 1,340 feet; Humphries Oil Co.'s No. 3 Maddox has cemented 8-inch casing and shut down at 1,950 feet.

Carson County: Drilling—The Gulf Production Co.'s No. 3-A Burnett, fishing for tools at 3,035 feet; Humphreys Oil Co.'s No. 1 Sandford, drilling by tools at 2,530 feet; Tipton, Stone and others' No. 1 McConnell, drilling in black rock at 3,010 feet; The Texas Co.'s No. 3 Burnett, rigging up company tools.

Hutchinson County: Drilling—Coline Oil Co.'s No. 1 Sandford, drilling in hard lime at 3,175 feet; Montgomery and others' No. 1 Johnson, underreaming pipe at 800 feet; Plains Oil Co.'s No. 1 Weatherley, will test a formation showing some oil at 3,270 feet.

Potter County: Drilling—Producers & Refiners Oil Co.'s No. 2 Masterson, drilling in brown rock at 2,540 feet; No. 1-A Bivens, drilling a water sand at 450 feet; No. 2-A Bivens, underreaming 15½-inch casing at 400 feet.

Old Well Blows in

It is reported from Breckenridge, Stephens County, that the Sun Oil Co.'s Stoker well, located 3 miles northeast of Breckenridge, which was a completion July 30, 1922, and made initial around 3,000 bbls. daily at 3,270 feet, and has gradually decreased its production until it almost ceased to produce at all, suddenly blew itself in with a strong gas pressure this past week for around 7,000 bbls. daily; since its first day's flow the gas pressure has decreased and the oil flow has become less with its present production gauging less than 4,000 daily.

Wells on Abandoned Townsite

The Bridwell & Heydrick No. 2 Flora May, on the Geraldine Townsite in Archer County, Texas, is reported a 700-bbl. producer at 1,580 feet and not yet completed. The Geraldine Townsite was platted and the lots sold in all sections of the country some 20 years ago. As a business center the town was a failure and it was soon deserted, only a few houses either for business or residence purposes were erected and what few there were, were soon vacated, torn down and moved away. Many of the first purchasers failed to pay out on their lots and their ownership returned to the original owners; others that paid out have scattered all over the country and their present whereabouts is unknown. Those that kept their lots and are in touch with the present conditions may reap a rich harvest on their long time investments. The Flora May lease is small, under the present State law having room for only two wells. The No. 1 completed some two weeks ago was a 400-bbl. producer from the same depth sand.

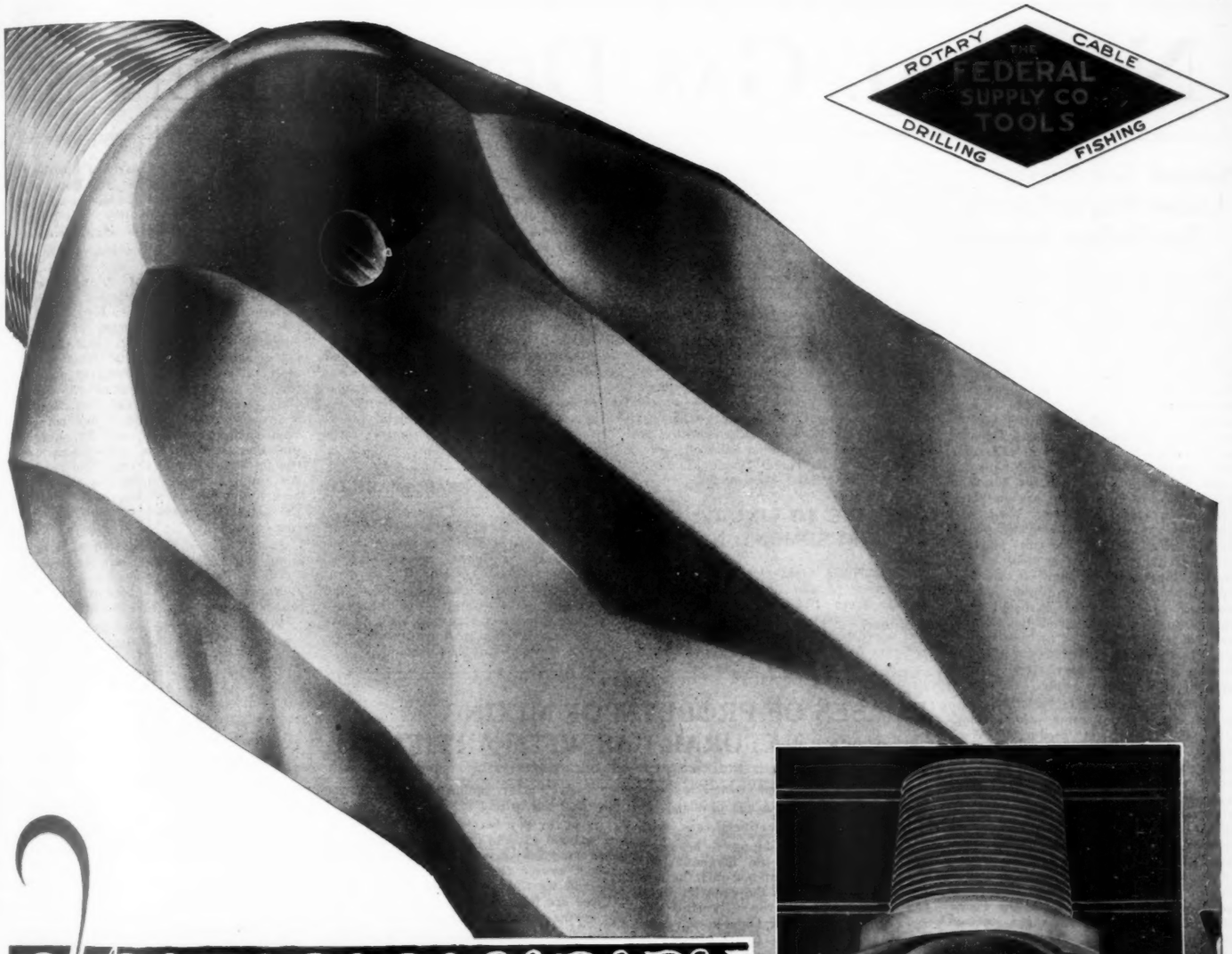
PRODUCTION REPORT

Week Ending October 4, 1923

Burkburnett	
American Refining Co.	300
Barkley & Meadows	2,135
Humble Oil & Ref. Co.	730
Gulf Prod. Co.	1,585
Magnolia Pet. Co.	3,735
Middle States Oil Corp.	275
McMahon Oil Co.	555
Oklahoma Pet. & Gas Co.	285
Panhandle Refining Co.	560
Sinclair Oil & Gas Co.	30
W. G. Skelly	295
The Texas Co.	730
Texhoma Oil & Ref. Co.	595
Miscellaneous	11,740
Total	23,550
Electra	
Empire Gas & Fuel Co.	1,995
Humble Oil & Ref. Co.	155
Gulf Prod. Co	1,045
Griswold Oil Co.	590
Magnolia Pet. Co.	5 610
Middle States Oil Co.	195
McMahon Oil Co.	205
The Texas Co.	5,665
Texhoma Oil & Ref. Co.	2,075
Miscellaneous	6,480
Total	24,615
Iowa Park, Archer County and Petrolia	
Iowa Park—	
American Ref. Co.	55
Griswold Oil Co.	10
Gulf Production Co.	65
Middle States Oil Co.	15
Texhoma Oil & Ref. Co.	45
Miscellaneous	2,000
Archer County—	
American Ref. Co.	450
Griswold Oil Co.	290
Gulf Production Co.	460
Humble Oil & Ref. Co.	140
The Texas Co.	455
Texhoma Oil & Ref. Co.	2,190
Miscellaneous	12,320
Petrolia—	
Gulf Prod. Co.	160
The Texas Co.	90
Miscellaneous	250
Total	18,995
Stephens County	
Empire Gas & Fuel Co.	70
Gulf Prod. Co.	1,775
Humble Oil & Ref. Co.	1,530
Magnolia Pet. Co.	990
Mid-Kansas Oil & Gas Co.	1,900
Prairie Oil & Gas Co.	890
Sinclair Oil Co.	45
The Sun Co.	265
The Texas Co.	3,410
T. & P. Coal & Oil Co.	1,070
Miscellaneous	8,260
Total	20,395
Eastland County	
Empire Gas & Fuel Co.	20
Gulf Production Co.	805
Humble Oil & Ref. Co.	160
Magnolia Pet. Co.	530
Mid-Kansas Oil & Gas Co.	30
Panhandle Ref. Co.	475
Prairie Oil & Gas Co.	605
Sinclair Oil Co.	410
The Sun Co.	40
The Texas Co.	255
T. & P. Coal & Oil Co.	1,005
Miscellaneous	3,665
Total	8,000
Other Fields	
Strawn—	
T. & P. Coal & Oil Co.	235
Miscellaneous	445
Moran—	
Empire Gas & Fuel Co.	185
Humble Oil & Ref. Co.	750
The Texas Co.	210
Texhoma Oil & Ref. Co.	205
Miscellaneous	2,400
Coleman County—	
Miscellaneous	155
Brown County—	
Miscellaneous	595
Comanche-Eastland—	
Humble Oil & Ref. Co.	385
Empire Gas & Fuel Co.	10
Magnolia Pet. Co.	1,370
Mid-Kansas Oil Co.	215
Prairie Oil & Gas Co.	140
Sinclair Oil & Gas Co.	70
The Sun Co.	350
T. & P. Coal & Oil Co.	80
Miscellaneous	3,340
Young County—	
Gulf Production Co.	215
North American Ref. Co.	175
Sinclair Oil & Gas Co.	115
Oklahoma Pet. & Gas Co.	150
The Sun Co.	20
Panhandle Ref. Co.	440
The Texas Co.	125
Miscellaneous	3,250
Mitchell County	680
Reagan County	150
Jack County	30
Total	16,490
Total all fields	111,845
Total last week	113,680
Loss	1,835

CALIFORNIA REFINING REPORTS

In an effort to improve monthly statistical reports of California refining by having a man to devote his entire time to their compilation, the United States Bureau of Mines has sent to California C. E. Steidel, heretofore attached to the bureau at Washington.



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THE FEDERAL SUPPLY CO TOOLS
DRILLING FISHING

NOTE THE DESIGN. Water course wide and deep. Absolutely vertical water holes; water or slush goes direct to cutting edge, where needed. These features, found only in our bits, prevent plugged bits and enable you to make more hole per dressing.

To Reduce Drilling Costs Always Use Federal Red Diamond Bits

The
FEDERAL SUPPLY COMPANY
ELECTRA, FORT WORTH, MEXIA, TEXAS

NATURAL GAS DEVELOPMENTS

Natural Gas Survey Under Way in Canada For Carbon Industry

CHATHAM, Ont., Oct. 6.—Plans are being worked out for the development in Canada of a carbon black industry to utilize natural gas which, owing to lack of a convenient market, would otherwise lie idle or go to waste. The mines branch of the Department of Mines at Ottawa, through R. T. Elsworthy, of the chemical division, is this season making a study and chemical investigation of natural gases in western Canada, to determine the composition, character and gasoline content, of the various gases, and their suitability for handling in gasoline absorption and carbon black plants. In the Canadian West are numerous gas areas situated at points distant from possible domestic market; and it is likely that, as a result of the present investigation, some of this production may be found available for the economic production of carbon black. The mining lands branch of the Department of the Interior is at present engaged in framing regulations for the production of carbon black from wells situated on Dominion lands.

In the Medicine Hat, Redcliffe, Bow Island, Viking and some other Albert fields, the large gas production commands an immediate market for domestic purposes. There are, however, other points distant from any large population where gas has been developed. Besides the several large wells already drilled in the Irma-Wainwright Field, an extensive gas production was secured by the Imperial Oil., Ltd., test at Pouce Coupe in the northern foothills. Extensive gas production has been encountered in drilling for oil in the Peace River district, and there is gas production also at Pelican Rapids, on the Athabaska. The policy of the Government has been to establish a preference for the domestic consumer, where gas was acquired for domestic purposes; but the feeling seems to be that where domestic markets cannot be reached, the operators should be given every encouragement to realize upon their investment in other ways.

In Ontario, the provincial Government is discouraging the use of gas for other than domestic purposes. Permission has, however, been given the Sarnia Oil & Gas Co., which controls a small production in Sarnia Township to manufacture carbon black, the production being found too small to justify pipe line construction. The initial plant of limited capacity will be constructed at once, and may be extended if developments justify. This plant will, it is understood, be the first of its kind in the British Empire.

Canada, while not producing any carbon black, is a larger user of the product, importing, for the fiscal year ending March 31 last, some 3,748,409 pounds of lamp bone, ivory and carbon black, valued at $446,812. The product enters Canada duty free.

TO ENLARGE CARBON PLANT

CASPER, Wyo., Oct. 8.—The Wyoming Yellowstone Oil Co. is preparing to change its name to the Yellowstone Gas Products Co., and will shortly enlarge the carbon black plant on the Golden Eagle Dome to a 30-house plant. At present this plant is a 20-house plant. The Midwest is also interested jointly with the Wyoming Yellowstone on the Golden Eagle and is drilling a well there with a rotary outfit and another hole with cable tools. At present one gas well is supplying gas for the city of Thermopolis and also for the carbon black plant. The gas is quite dry and hardly considered worth while as a gas to run through a gasoline plant.

TO CONNECT GREENWOOD CO.

BARTLESVILLE, Okla., Oct. 7.—Plans have been approved for the extension of the Empire Co.'s telephone and telegraph system over the entire Greenwood County Field, more than 100 miles. Oil Hill, Kansas, telegraph line will be extended to giving telegraph service to Sallyards, Teter, Thrall, Winegar, Clopton, Seeley and Madison.

GAS LINE TO VIKING AND EDMONTON, ALTA.

CHATHAM, Ont., Oct. 6.—Following completion of the 3-mile pipe line of Northwestern Utilities, Ltd., from the Viking gas field to the town of Viking, the service has been formally opened. Four of the wells in the Viking Field have been connected and connections are being made with five others, and the system will later be linked to the main line from the field to Edmonton, now under construction. No. 10 well, now drilling, is nearly finished. The wells show a rock pressure close to 800 pounds with an aggregate open flow production of about 45,000,000 feet a day. At last reports the trenching for the 79-mile pipe line from the field to Edmonton was finished, and approximately 32½ miles of pipe were laid, with three pipe-laying crews at work laying about 2½ miles a day. All pipe for the work has been delivered, and the distributing system in Edmonton is practically complete. Some 2,400 applications for gas services have been received in Edmonton.

CARBON PLANT NEAR AMARILLO

AUSTIN, Texas, Oct. 8.—Application for permit to establish a carbon black plant in Potter County, near Amarillo, was filed with the Oil and Gas Bureau, State Railroad Commission, by the Mountain States Gas Co. of Amarillo. Previous permits for carbon black plants in the same section, to burn natural gas, have been denied, it was stated.

PHASES OF PROBLEM OF MIXING NATURAL GAS WITH ARTIFICIAL

The first city manager council in Cleveland is going to have a gas problem, the question of mixing artificial gas with the city's natural gas supply to have sufficient quantity for the maximum demand. It will confront not only the new Cleveland Council but the councils of all the communities in the Cleveland district supplied by East Ohio lines.

The problem already is before the City Council in Akron, which asked the East Ohio to suggest ways of remedying the recurrent winter low pressure conditions on natural gas lines. The East Ohio suggested mixing as the way out for Akron.

Martin B. Daly, president of the East Ohio, says that the East Ohio Gas Co. at present has no mixing proposition to present to Cleveland or its suburbs, but is prepared to live up to its recent settlements.

"The East Ohio," he said, "recognizes the problem which exists in the fact that the natural gas supply is limited, whereas the growth of population and gas consumption is not.

"We are just starting in Akron," said Mr. Daly, "and we are not really in shape to discuss the proposition. We have nothing in mind at present for Cleveland. But some time we will have to come to mixing gas, or to using coal or water gas—that is, artificial gas—entirely. I do believe we must do it some time or other.

Delivery in Cleveland

The Cleveland district at present could absorb a maximum winter delivery of 110,000,000 feet of natural gas a day. The East Ohio is able to deliver only around 90,000,000 feet. Where the East Ohio could use 150,000,000 feet a day in winter on all its Ohio lines in addition to what is produced in Ohio, it can get only 125,000,000 feet from West Virginia to allocate the various communities.

"The amount the East Ohio is able to produce in its own fields in Ohio is relatively very small," said Mr. Daly, "and that so far as possible we use only during the coldest weather to help us meet our peak. Our problem is getting the gas and not selling it."

It is the gap between available supply of natural gas and the peak demand in all the communities served by the East Ohio which causes the periodic low pressure in cold weather, according to Mr. Daly. These are felt most often during the fall or spring when people try to meet sudden cold spells by using gas instead of coal and during the cold wave periods of midwinter when, despite the fact that many have turned to coal, thousands of others depend entirely or in part on gas.

When every gas cock in the neighborhood is open, as sometimes happens at these times, the available gas is drained out of the mains faster than it can flow through. Everybody gets some, but few enough.

Effect of Rates on Use

What the effect of the new gas rates adopted in June will be on consumption in Cleveland this winter, Mr. Daly said it was too early to predict, although it is expected that the higher prices will diminish the use of gas for heating, particularly through furnaces.

Under the settlement, the East Ohio was required to lay approximately 100 miles of new lines in Cleveland and suburbs and take on new customers to the number of about 15,000. These extensions have been laid during the summer and new consumers are on the company's lists.

Despite the new consumers have been given lines only for restricted domestic purposes their demand is expected to offset very largely the diminution in demand where older customers have turned to coal to beat the price of gas for heat.

With Cleveland and its neighboring communities growing rapidly, the gap between demand and supply of natural gas is expected to increase in proportion to the growth with the result that low pressures during cold spells will become more and more acute.

Puts in New Regulators

The East Ohio, in accordance with the settlement, has initiated new regulators on the mains in many parts of Cleveland, but these, according to Mr. Daly, will serve only to equalize the distribution of the gas and will not meet the fundamental problem when the supply is short.

It is to meet the problem of the increasing gap between supply and demand that mixing of artificial with natural gas has been suggested in Akron, Buffalo, N. Y., Louisville, Ky., Los Angeles, Calif., and a number of smaller cities already are doing it. But the mixing problem for the East Ohio is far more difficult as an engineering problem than it was in most of other cities, Mr. Daly said, and pointed out that the processes for accomplishing it had not yet been entirely worked out. In most of the other cities, he said, artificial gas was the basis for the mixture. The natural gas supply was much smaller even than here and what there was was added to the artificial merely to enrich the mixture.

In the case of the East Ohio, he said, the problem would be to put the artificial gas into the natural gas—a process of thinning down the substance and one which is chemically far more difficult.

"That's one of the reasons why I say we have not at this time any definite proposals to present," said Mr. Daly. "We could not, as many people suppose, go out somewhere along the line and turn artificial gas into the mains with our natural gas.

Gases Differ in Weight

"All kinds of trouble would result. The two kinds of gas haven't the same specific gravity, weight. They wouldn't mix well. Customers might get artificial and natural gas by turns in their burners and their burners would not be adjusted. Natural gas is the purest gas there is. Artificial gas has many impurities which would have to be removed or handled in some way. We believe we have hit on a method, but we cannot be too sure of it.

"At any rate, the change is one which could not be undertaken without a very great expense for the rebuilding of our artificial plant and for the installation of the mixing apparatus."

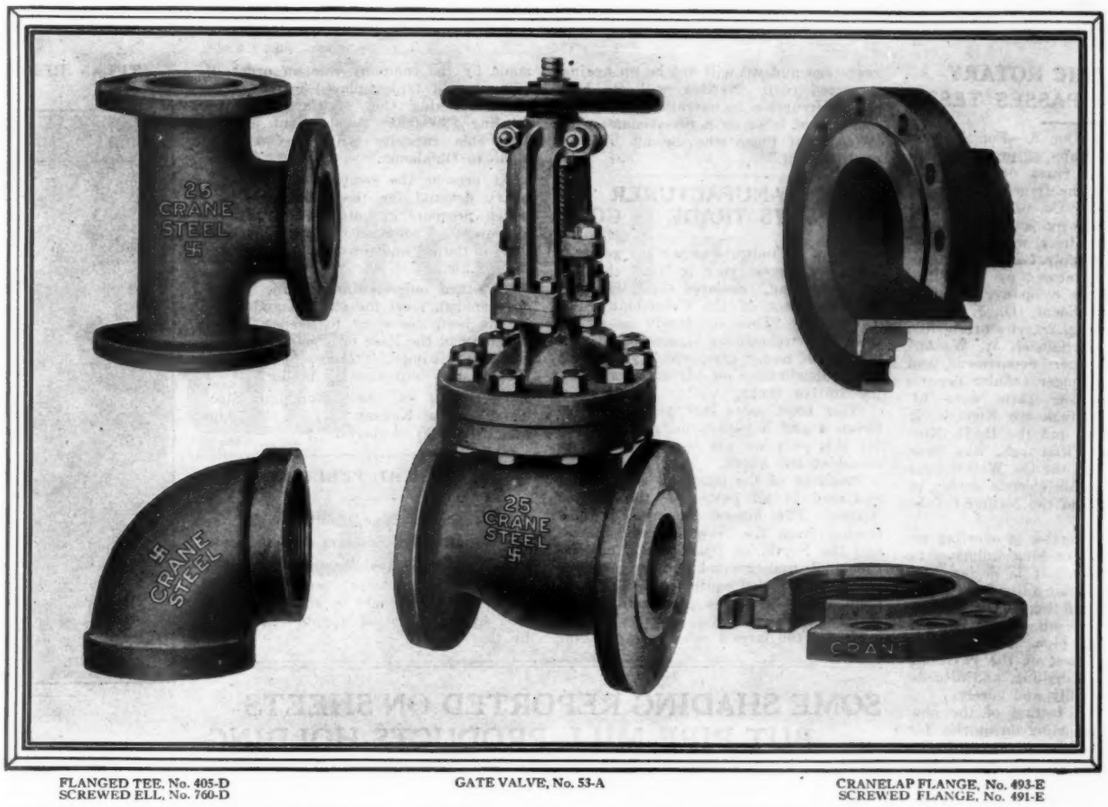
Mr. Daly said he could not say what the effect would be on the price until the company knew more as to what the process might cost. In Akron, where the rates have been from 45 to 50 cents, compared with the present 45- to 75-cent rates in Cleveland, it is believed the mixture would cause an average increase of more than 10 per cent.

Benzol Is Problem

One of the big problems of mixing artificial and natural gas in Cleveland would be the getting rid of the benzol in the artificial gas, which, unless eliminated, would rot out the rubber gaskets now used on the Cleveland mains. A method for doing this by reducing the artificial gas to the dew point before mixing it with the natural is being tested. The change would involve almost a complete rebuilding of the East Ohio's present artificial gas plant, which supplies industries.

That the change to mixed gas would be only a step in preparation for the time when Cleveland would have to depend entirely on artificial gas is considered self-evident. Whether mixing gas would delay the time when Cleveland would have to turn to artificial altogether, Mr. Daly could not predict.

"If we controlled the supply," said he, "it would be a different matter. But we do not control the supply. I believe that all the others drawing on the same fields are doing all they can to conserve the supply, but the situation is not the same as if the supply were for us only."



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EQUIPMENT AND SUPPLIES

NEW ELECTRIC ROTARY DRIVE PASSES TESTS

OIL CITY, Pa., Oct. 8.—For the past several months groups of prominent oil men from various parts of the world have been visiting the Imperial works of the Oil Well Supply Co. to become posted on the development and tests of a new electric rotary drive, which is owned by the Oil Well Supply Co. Final tests last week were witnessed by the Pittsburgh officials of the company, including Louis Brown, president, D. J. Brown and Thomas Fleming, Jr., vice presidents, E. E. Greve, chief engineer, W. W. Anderson, manager export department, and James Hunter, manager tubular department. Accompanying them were officials of the Westinghouse Electric & Manufacturing Co., and the R. D. Nuttall Co., both of Pittsburgh, who have been interested with the Oil Well Supply Co. in developing this electric drive; in addition to officials of the National Tube Co.

This drive has promise of exerting remarkable and far reaching influence in oil drilling methods. It is designed to feed the rotary drill bit automatically, at the same time regulating the weight of the drill pipe on the bit and the torque or load on the drill pipe. It is believed this will prevent most of the twist-offs and like hazards in drilling, and also do the work more rapidly and surely.

The building and testing of the new apparatus has been going on quietly for a year at the Imperial plant, with the engineering staffs of Oil Well Supply Co., Westinghouse Electric & Manufacturing Co., and the R. D. Nuttall Co., actively cooperating. The machines were built and tried before Oil Well Supply officials were fully satisfied and willing to ship the apparatus. The outfit is being sent to the Chancellor Canfield Midway Oil Co., and will be put to work in the Torrance Field, California.

The tests made at the Imperial plant involved the erection of a complete derrick, and the installation of reglar drilling apparatus, although no hole was actually drilled because the local formation will not permit rotary drilling beyond a few feet in depth. Set in its regular place in the derrick was one of the Imperial rotaries of the Oil Well Supply Co. The entire test was conducted under conditions as nearly like those to be met in actual drilling conditions as was possible to reproduce under local conditions.

"We have been much gratified," said Thomas Fleming, Jr., vice president of the Oil Well Supply Co., "with the unanimous approval accorded the principle of this device by the many engineers and operators, some of whom came great distances to see it. We believe the new drive as we have developed it, will prove an important contribution to the oil industry; but, of course, we are reserving our final judgment and formal advocacy of it until it shall have successfully drilled a deep hole."

The system, which embodies a new method of machine control, is the invention of a California engineer, F. W. Hild, of Los Angeles, who has spent the greater part of the past 12 months in Pittsburgh and Oil City, directing the development of the apparatus.

NO DELAY BY HOUR CHANGE

CINCINNATI, Ohio, Oct. 8.—Introduction of the three-shift day in the steel industry will not affect the American Rolling Mill Co. because it expected the change. George M. Verity, the president, states. He says "the whole problem was worked out three years ago and we will not be up against increased cost. Neither will we have any interruption in operation because of shortage of labor or a dissatisfaction on the part of those who do not like the readjustment."

TANK MANUFACTURER SAYS TRADE IS GOOD

"From all indications we are going to have the biggest year in 1924 that we have ever had," declared C. A. Kramer, vice president of the Columbian Steel Tank Co. "This conclusion is drawn from the tremendous increase in the number of motor cars, which gives us a wider distribution on our truck and filling station tanks.

"Our total sales last year were between 4 and 5 million dollars and thus far this year we are ¼ million dollars ahead of our quota."

Products of the company are shipped and used in all parts of the United States. The biggest business is now coming from the New England States and the South, on truck tanks, oil station and underground tanks, gasoline pumps and varied equipment. The company also is selling a good many guam storage tanks.

One of the largest sales of tanks ever made by the company was an order of 570 oil field tanks, placed by the Mid-West Refining Co., of Casper, Wyo., totaling $300,000. A shipment of 145 1,000-bbls. capacity tanks was recently made to Oklahoma.

At present the company is having a heavy demand for the "floating deck," which prevents evaporation and fire in oil lands. The float rests on the surface of the oil and prevents any circulation of air.

"We are only beginning now to secure enough steel for our demands, and it has been necessary to keep a representative in the East to urge shipments," said Mr. Kramer. "Generally speaking, though steel deliveries are better."

The plant of the Columbian Steel Tank Co., in Kansas City is now running with 500 employes.

AN UNUSUAL PUBLICATION

"The Marion Line," published by the Marion Machine, Foundry & Supply Co. of Marion, Ind., is an attractive little periodical which must put those into whose hands it comes in good humor to look over the list of supplies marketed by this firm.

SOME SHADING REPORTED ON SHEETS BUT PIPE MILL PRODUCTS HOLDING

By B. E. V. Luty

PITTSBURGH, Pa., Oct. 8.—It seems to be a case of dullness begetting dullness in the steel market. Apparently the individual buyer, seeing that the market is quiet, resolves to buy still less, and thus the dullness grows. The same thing is seen, in reverse order, in the early stages of a buying movement.

What adds to the difficulty is that in many lines buyers have been receiving up to date shipments on old purchases, made before the market reached its present level, while on new purchases they would have to pay the market price. Thus, the buyer feels that he would be paying an advance at precisely the wrong time. This applies particularly to bars, shapes and plates. In tubular goods, wire products and sheet orders at below current prices are quite well cleaned up.

In some quarters the view is that there is virtually a contest now between sellers and buyers, the latter holding out for lower prices. The steel mills refuse to admit this, and deny that there is any amount of business being held back awaiting lower prices. Under similar circumstances in the past they have made the same claim, and the outcome has proved they were right. Heavy buying has always occurred in an advancing, not a declining market.

Trying to Hold Prices

The mills in general are lined up to hold prices as long as possible. When declines occur, they will be brought about by some mill or mills weakening. Cutting by a few small mills probably would not be met but cutting by one large mill would be. Prices may begin declining within a fortnight or they may hold through the year. The chances seem to be in favor of the latter, as there is a fair backlog of business on mill books, and there must always be some current buying.

Steel production has been declining at a somewhat greater rate since September 1 than in the preceding four months, but the rate of operation is still relatively high, nearly 50 per cent above the average rate in the best two years before the war, and considerably above the average rate in the four post-war years up to the beginning of this year. Roughly speaking, new orders, for prompt shipment, received from week to week, account for about half the production, and old orders, some of them very old, for the other half. As new buying is not increasing and the old orders are being completed, mill operations tend constantly to decrease.

The pipe mills have lately been running better than other parts of the steel industry, but are now curtailing operations slightly on account of the lessened call for oil country goods. In merchant or full weight pipe they still have all the business they can handle. Jobbers' stocks are very low and jobbers will take all the shipments they can get this month. In the closing weeks of the year they will be disposed to keep their stocks down, on account of inventory, building stocks up afterwards for the spring distribution.

Sheets Being Shaded

There is a little more shading in black sheets than formerly, and shading has extended to galvanized sheets, but the sheet market is not really quotably lower, most of the business going at full prices. Should finished steel prices begin to decline pipe mill products would probably hold for some time, except that there would probably be shading on large line pipe orders. It is thought that some pipe line projects now held in abeyance would come out if close competition among mills should develop.

Pig iron, which declined rather sharply in May and June, but was quite steady afterward, is again dropping, the local market showing a decline in the week of $1 on Bessemer and basic and 50 cents on foundry.

Connellsville coke has weakened further, there being practically no buying demand, and prices are down to where they were at the end of July, before the anthracite scare lifted the market.

TULSA REPRESENTATIVE

R. J. Titley

R. J. Titley, former purchasing agent of the Mid-Co Petroleum and Gasoline Companies of Tulsa, Okla., is now associated with Reading Iron Co., with headquarters at Tulsa, Okla., having charge of that company's busines in Oklahoma and Kansas. Mr. Titley also served as assistant general manager of the Interstate Pipe Co. at Tulsa and later as district sales manager at Houston, Texas. Four years spent as traveling auditor for the Continental Supply Co., covering all their stores from Pittsburgh to Wyoming and Texas, afforded a wonderful opportunity for the making of helpful contacts and the acquiring of broadening experience.

NEW ALL STEEL DRILLS MADE BY ARMSTRONG CO.

The Armstrong Manufacturing Co., of Waterloo, Iowa, builders of portable drilling machinery, perfected a line of all-steel drills, which has many important features of design, construction and operation.

Being made entirely of steel and iron, these machines, it is said, eliminate fire risks, resist wind and wear, and have the power and rigidity to carry a heavy string of tools through any kind of rock formation, to their maximum capacity, which in the non-traction model is 800 feet and traction model, 1,200 feet.

The power equipment consists of a 4-cylinder heavy duty gasoline engine of standard design and manufacture, which insures a constant, steady flow of power. On the traction model the engine is fitted with speed control on both ends of machine, and has a reversing transmission which acts in the same capacity as the reversing feature on a steam engine.

Both traction and non-traction models are equipped with casing hoist, which works independently and can be operated without stopping the drilling machine. The traction model is a walking beam machine and is also equipped with the Armstrong improved overhead spudding beam for spudding in, which has been used successfully on Armstrong drills for many years.

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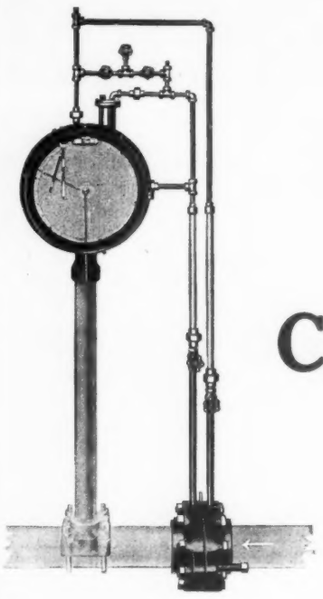

The Meter For Casinghead Gas

THE Foxboro Type "C" Orifice Meter with differential range 0-20", is particularly adapted to the accurate measurement of casinghead gas.

It handles a given volume of gas with a much larger orifice than would be possible with a higher range instrument—pressure losses are greatly reduced.

The chart has a reverse scale with the vacuum section on the outer edge. This arrangement, found only on Foxboro Orifice Meter Charts, makes the record ideal for easy, accurate reading.

The Foxboro Orifice Meter has many exclusive design advantages, including all steel construction, close-up, fool-proof flange connections, positive, trouble-proof check valves, pressure-tight bearing and improved helical tube recording movement.

Since the first commercial orifice meter was built, the Foxboro Orifice Meter has been the recognized standard for oil and gas field service.

Write for Bulletin O-113-1

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THE COMPASS OF INDUSTRY

5782

CENTRAL WEST

(Continued from Page 46)

owners are anxious to get on power all the wells possible before the winter.

An important find was made by W. J. Heeter and others in the drilling of a test well on the Charles Osborn, Sr., farm reported near the Johnson County line, but in Lawrence County. The oil was found in the Berea sand and will make around 5 bbls. natural, but will be given a shot. This well failed to make a showing in the Weir sand, in which the owners expected to find a pay and, failing, concluded to make a test of the Berea sand which they did with pleasing results, which looks as though an entirely new pool had been found. The well also makes a nice showing of gas. As this well is ahead of the Blaine Field it is probable that it will prove to be a separate pool or valuable extension. Joe Miller and others are associated with Mr. Heeter in the holdings.

H. W. Creel, operator of Louisa, with his two brothers, and known as the Banner Oil Co., is enthusiastic over their new find near Syracuse, in southern Meigs County, in Ohio and only a few miles out from Pomeroy, and west a short distance from where the Pure Oil Co. recently completed an oil well. The well shows a nice volume of gas and some oil and looks like a 5 or 10-bbl. producer from the Berea sand.

Knott County to the south of the Big Sandy Field, comes to the front with a gas well drilled by Garver and Davis on the Jack Shepherd farm. The well had no oil showing but looks like a fine gasser.

Late reports from Floyd County, also south of the Big Sandy Field, reports three wells nearing where something should be discovered. Cross Bros. are reported down 1,150 feet in a test on the C. D. Patrick farm. Brown and Harmon reached 1,250 feet in a test on the Kentucky River Coal Co., lease and the Pennegrade Oil and Gas Co. is down 1,150 feet at a test on the Gloglora Coal Co.'s lease.

North Wier Field

Ten completions are reported from the North Weir Field of Lawrence and Johnson Counties of the Big Sandy Valley. The Union Gas and Oil Co. reports one completion in its No. 3 on the E. H. Skaggs farm, Lyons Precinct No. 9.

The Cumberland Petroleum Co.'s No. 5 Lee Skaggs, Jr. farm, about a mile northwest of Keaton, is reported showing for around 10 bbls., and No. 6 for 7 bbls. Its No. 5 on the Leo Skaggs, Sr. farm is showing for 10 bbls. The Five Acre Oil Co.'s No. 2 Robert Fyffe, is reported at 8 bbls. The Mid South Oil Co.'s No. 1 W. H. Kelley, is reported at 3 bbls., and the Indian-Tex Petroleum Co.'s No. 6 J. C. Gillan No. 2 farm, at 15 bbls.

In the Busseyville area, Oscar Nelson's No. 1 Rube Wellman farm, estimated at 1 barrel, and his No. 1 John Ratcliff, at around 3 bbls.

The Union Gas and Oil Co. has started new wells as follows: Nos. 13 and 14 Levi Skaggs, No. 12 Andrew Skaggs, No. 23 P. P. Holbrook, No. 18 J. H. Skaggs, No. 4 Anna Rose and No. 4 L. H. Skaggs, all in Lyons Precinct No. 9.

South Weir Field

Fourteen wells are reported from the South Weir Field of Johnson and Magoffin Counties. R. G. Gillespie drilled in Nos. 7 and 8 Sam Blanton 125-acre piece, at 10 bbls. each; Nos. 6, 7 and 8 Darious Conley farm, at 10 bbls. each.

Atlantic Oil Producing Co.'s No. 8 H. Cantrell east 40 acres, reported 10 bbls. Meade & Stafford's No. 6 Thomas Meade farm, estimated at 1 bbl. Model Oil Co.'s No. 14 J. W. Lemasters farm, looks good for 8 bbls. Swiss Oil Corp.'s Nos. 26 and 27 Millard Blanton, good for 8 bbls. each, and No. 28 for 6 bbls. Kentucky Counties Oil Co.'s No. 4 Charles and Ella Roark farm, showing 10 bbls. Oliver Jenkins' No. 1 Harry Adams, looks like a 5-bbl. well, while T. J. Tonkin and others' No. 4 Isaac Williams farm, shows 10 bbls.

The Wood Oil Co. at last reports had reached 2,100 feet at its deep test on the Floyd & Paul Rogers farm, in the Pitts Precinct of Estill County. The present formation of this well shows the Corniferous sand at 249 feet. Went through sand and cased off with 12½-inch at 282 feet; water at 300 feet, cased off with 10-inch. Struck blue lime at 340 feet, red rock at 440 feet, blue lime mixed to 445 feet, and sandy lime from 445 to 451 feet. Blue lime to 916 feet. Upper Sunnybrook from 916 to 956, smell of oil, washed rainbow, enough gas to bubble in hole. Blue lime with white particles to 1,490 feet, from 1,490 to 1,492 feet, Pencil Cave sand; from 1,492 feet brown lime with white shale formation was found to present depth of 2,100 feet, and still drilling.

Clinton County is now getting the fever after practically a shut down for a couple of years; some wells started were not completed, but are still in the process of completion. The Goodwill Oil Co. and the Shipley Oil Co. are moving the machinery on their holdings in the Shipley community and preparing to put down five test wells. This property is only a few miles from the once good looking Fanis Creek Pool. C. H. Smith and associates, of Jerusalem, Ohio, who have been drilling on the Harrison Hopkins farm, near Albany, are closed down on account of lost tools in the hole. Lucian Beckner, the Winchester geologist, spent several days looking over the property of the Goodwill Oil Co. in the Shipley community.

The runs of the Cumberland Pipe Line Co., through its gathering lines in the eastern Kentucky fields, for the week totaled 39,114.03 bbls., for a daily average of 15,519 bbls., while the previous week's runs were 19,107.23 bbls., for a daily average of 15,184.54 bbls.

Word comes from Martin County, that Huntington, W. Va., parties found a nice pay in its third test on the Simpson 12,000-acre tract. The new well is on Scaffold Lick Fork of Beech Fork. At 1,500 feet the drill passed through 60 feet of Berea sand with an excellent showing of oil. The well will be drilled 2,500 feet to make a test of other sands. The well from the Berea sand shows a commercial producer, and, should nothing be found below, the well will be produced from the 1,500-foot level.

BRITISH CONSUMPTION OF OIL GROWING FAST

NEW YORK, Oct. 8.—"We are now selling about 7,000,000 barrels of gasoline, fuel oil, lubricating oils, etc., or about 1,000,000 tons yearly of all our products," said F. E. Powell, chairman of Anglo-American Oil Co., arriving on Aquitania for an annual business trip.

"There have been two price reductions in petrol since July, one of 3d and another of 2d, making the present price of Grade 1 petrol 1s 4d a gallon in two-gallon tins. But even at that price we can still make money.

"As a result of the decline in the price of oil in America consumption has increased in Britain about 20 per cent over the last few months. Of course it must be remembered that there is a gradual increase in the motor vehicles of Britain. There are now 700,000 motor vehicles, of which 300,000 are motorcycles, and the number is constantly increasing. The oil trade, as a result, is picking up.

"Most of the oil in England is being imported from the Persian fields or the Far East, but a good deal of it is coming from California through the Panama Canal. Only a small amount is being imported from Russia, because it is not suitable for motors and can only be used for lamps.

"We are using a pump system satisfactorily for our distribution in England, but are also still using the two-gallon tin because of its popularity. We have no service stations in Britain such as you have in America."

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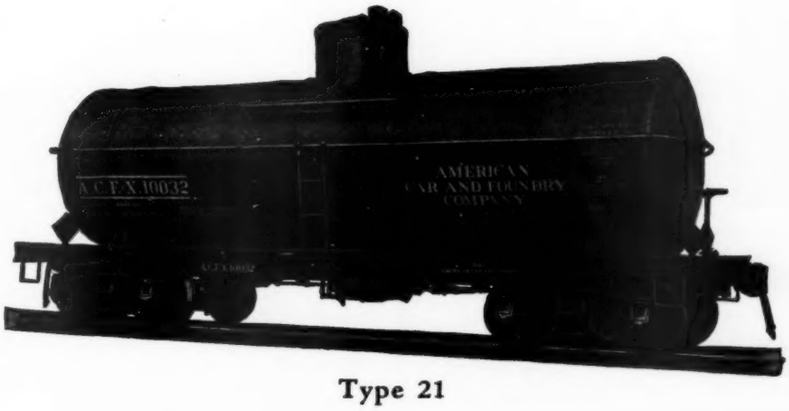

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What Makes 'em Smile?

The Sun Shines Bright Wherever Reed Bits Are Run With Slush Lubrication

H. L. RUDOLPH, Driller, with Dauchy & Bryant, Contractors, in Luling Field, who likes his work better since using slush lubrication in operation of Reed Bits.

Here is Driller Rudolph, one of those fine, jolly types, whose radiant smile and cheerful words keep the boys in good spirits, when they are wrestling with hard formations.

But what accentuates "Rudy's" smile is the successful performance of a Reed Roller Bit and Reamer using slush lubrication instead of oil. The bit shown was run for 48½ hours—elapsed time—making 131 feet of rock with only one pull-out, which was because of the formation.

The well was the Hardeman No. 2, new Luling (Texas) oil field, which was finished up in good shape with a flow reported by the newspapers as a 1,500-barrel producer.

The Reed Slush Lubricating System is the most advanced idea of the times and almost overnight reached universal popularity among drillers in all principal rotary oil fields.

The Reed Slush Lubricating System is exclusive with Reed Bits and Reamers. Other Rock Bits of competitive make will not operate with slush lubrication. The manufacturers tell you so themselves.

Slush Lubrication in Reed Bits eliminates all special connections, does away with lubricating devices of expensive nature and saves worlds of time (going in and coming out of the hole are only a part of the story.) Among other things it takes a lot of gloom off the derrick floor and engenders healthy spirits among the crew.

If you want facts, let us send you a book of sworn testimony besides other information about this latest big idea in the successful drilling of oil wells.

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Stocks with Continental Supply Co. and Frick-Reid Supply Co.

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GOVERNMENT REGULATION OF OIL INDUSTRY

(Continued from Page 66)

industry, this bureaucrat who might endeavor to fix the price of oil would have to take into consideration competitive conditions of other industries. Fuel oil, for example, comes into competition with coal and natural gas, and this price fixing agency would have to know every product obtained from crude oil, every product with which it comes into competition, the market conditions of all these products, the cost not only of producing the crude but of refining and distributing its manifold products, and take all these factors into account before fixing the price. If we assume that all this wisdom can be assembled in a Government bureau, this bureau would then be compelled to know all the changes that are going to take place, not only in the petroleum industry, but in the entire economic structure, and be able to adjust its price from week to week to meet these kaleidoscopic changes.

The price of petroleum and of its refined products is intimately related to so many other industries, and the price structure is so related to the price structure in the other industries that control of one would necessitate control of another, and another, and another, until the venture into price fixing in such an industry as this, related as it is to so many other industries, would finally result in price fixing to all industries.

Obviously, price control in the petroleum industry, as in every other, must be left to the law of competition, and cannot be controlled either by a Government bureau or by any one corporation or group of corporations. The supply of petroleum, the demand for its products, competition between producers and purchasers, and between the petroleum products and other products, all act upon the price structure, and it is a result of many complex movements and cross-currents.

All that Government can do in respect of prices is to keep open the channels of competition, and this it should do. And more than this it should not undertake.

Transportation of Crude

Crude oil is transported overland either by railroad or by pipe lines. All railroads are common carriers. All interstate pipe lines are common carriers, and the intrastate pipe lines are common carriers in the principal producing States. Government has already required pipe lines to become common carriers, and as such it has the right to regulate and is regulating their practices and prices. In the report of the Senate Committee which recently considered the petroleum industry it is said:

"Pipe lines must be made real common carriers. * * * The first step toward making pipe lines real common carriers is to divorce the ownership of the pipe lines from the ownership of the oil transported. The rule applicable to common carriers, that they must provide service to all impartially, that the service must be provided at reasonable rates, and that the service must be adequate, if applied to the great pipe lines of the country, would go far toward breaking the monopoly which now completely controls the business."

If there are any pipe line companies subject to this criticism, the cause of the criticism ought to be removed without waiting for further Governmental action. The pipe lines are common carriers, and as such ought to furnish service impartially, reasonably and at reasonable rates, and should not invite hostile legislation by failing to do so. I assume, of course, that the committee does not mean that large organizations engaged in the production, refining and distribution of petroleum should not own stock in a pipe line company. Many of the pipe lines were built as plant facilities, their primary purpose being to transport the oil of the producer and purchaser to his refinery. After being built on this theory they were required to become common carriers. In the main, they have since been organized as pipe line companies and their stock is largely owned by great producing, refining and marketing organizations in order to secure a certain and adequate spply of crude oil at their own refineries. If the producing and marketing companies are prohibited from being interested in pipe line companies, even by stock ownership, their refineries would be cut off from their own production and from their purchasers in the field, and the business, which is essentially a unit, would be split into parts with a decrease of efficiency, an increase of overhead and no economic gain to the public. Certainly before any such movement is undertaken, the effect of similar action, divorcing the packing industry from the stock yards companies, should be considered with care.

The Refining of Crude

There are approximately 500 refineries in the United States, owned by approximately 250 different companies or individuals. These refineries are diligently seeking improvements in refining processes and applying to this search all the talent available. Marked advances have been made recently, substantially all of which are covered by patents applying to various cracking processes. There are some conflicting claims which have resulted in litigation and may result in further litigation. Some of this litigation, however, has been recently settled, with the result that the patent situation has been greatly improved and the refiner can take his choice of several processes with reasonable freedom from fear of infringement.

Certainly in the refining department of the petroleum industry there is no occasion for Governmental regulation.

Distribution of Refined Oil

In the sale of the refined products, so far as I am advised, criticism has been confined almost wholly to the price of gasoline. Of the dozens of other petroleum products the distribution seems to have been handled satisfactorily. But there has been widespread dissatisfaction in the distribution of gasoline.

Some of the companies engage in all of the departments of the petroleum industry, including production, transportation and refining of crude, and distribution of the manufactured products, including the sale of gasoline at company owned filling stations. Others produce, refine and sell it at wholesale, without operating filling stations. Still others purchase crude, refine it and sell the products at wholesale. Others merely deal in the refined products, buying from refineries and selling to retailers, while still others merely own filling stations and buy in the open market. It is estimated that there are 90,000 filling stations in the United States, exclusive of the curb pumps, which amount to several thousand more.

This complicated situation, involving thousands of owners in every State of the Union, natrally results in diversity of price in different sections of the country. The tendency, of course, is for the same price to prevail in each community, because if one dealer cuts the price other dealers naturally meet the cut. It would be difficult for different dealers in the same community to sell their products at different prices, and it is as natural for gasoline in the same community to be sold by different dealers at the same price as it is for bananas or apples or potatoes or any other commodity. Diversity of price in the same community is the exception rather than the rule, but diversity of price in different States is the rule rather than the exception.

Proof of Competition

The heavy temporary excess production of crude in California has naturally reacted upon the price of crude throughout the United States, and this has naturally been reflected by reduced prices of gasoline. This of course, has been the result of competitive conditions, and competitive conditions by different

(Continued on Page 104)

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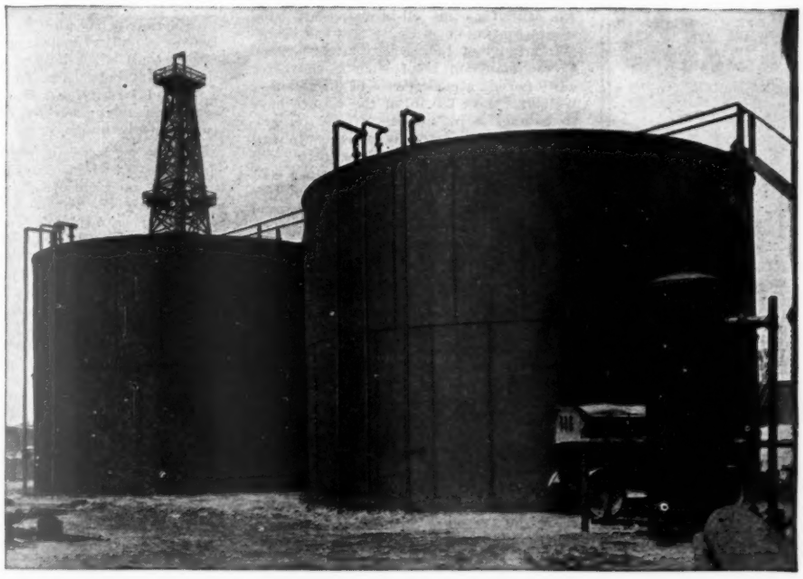

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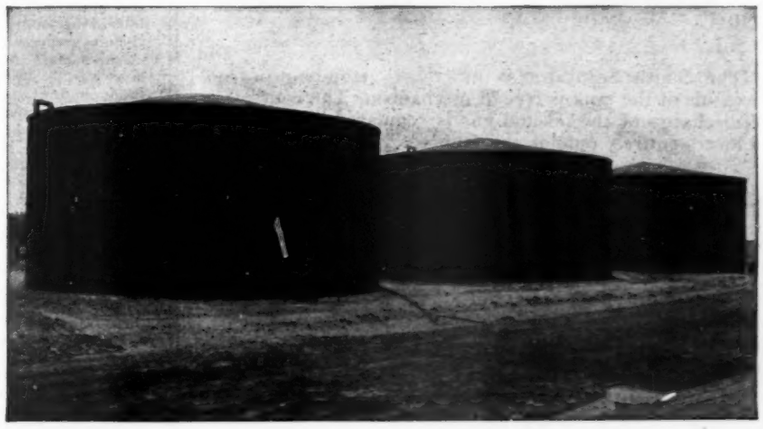

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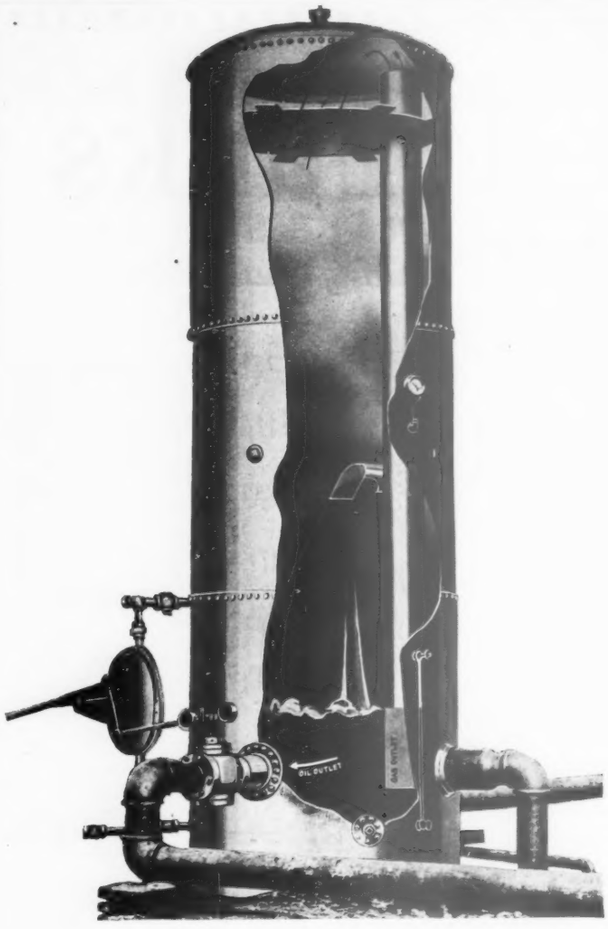

The Smith Separator is practically trouble-proof. The inside of the tank is free of mechanism. The control and discharge of the oil and gas is regulated by valves and levers entirely outside the tank.

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SMITH
OIL AND GAS
SEPARATOR

Manufactured by the

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CENTRIFUGING OIL REFINERY EMULSIONS

(Continued from Page 58)

on any other factor. One reason for this dependence is to be found in the curious relation between the specific gravity and the hydrostatic pressure of emulsions. The continuous centrifuge works on the U-tube or Florentine flask principle, and for homogenous liquids the ratio of liquid depths is assumed to be inversely equal to the ratio of specific gravities. But in the case of emulsions where the globules have a diameter of one micron or larger, the balanced depths are not inversely proportional to mean specific gravities. For example, suppose we centrifuge an oil-in-water emulsion whose continuous water phase has a specific gravity of 1.00, while the oil is 0.80. If the emulsion is of such a character as to permit a coalescence of oil globules, we may expect 0.8 in. of the water phase to balance 1 in. of oil. If the oil globules cannot be made to coalesce, we may so operate as to form a concentrated oil-in-water emulsion containing 70 per cent of oil. The mean specific gravity of this emulsion should be 0.86, and it would be natural to expect 0.86 in. of water to balance 1 in. of emulsion. Experience has shown that this is not the case; we are likely to require 0.96 in. of water to balance 1 in. of this emulsion.

Adjustment of the centrifugal depends on the type of the emulsion. In the case of water-in-oil emulsions, water is assumed to be heavier than oil. Subsidence by centrifugal force will, therefore, move the water globule outward. If the globules coalesce when they come into contact, a continuous water layer will be formed at the periphery. The coalesced water layer is equivalent to "dead" space in the sense that this water layer requires no more work from centrifugal force and yet takes up room in the rotor, thus reducing the capacity of the rotor for the oil phase. On the contrary, the suspended oil globules of an oil-in-water emulsion are presumed to be lighter than the water and will therefore be moved inward by centrifugal force. If the oil globules coalesce, an oil layer is formed at the surface; in this case it is the oil layer that is dead space. If coalescence is not obtained and the suspended globules are merely brought into close contact, the concentrated globules form a viscous, or gelantinous, layer that may also be regarded as dead space.

There are cases in which a partial coalescence may be obtained by centrifugal force. Such cases are frequent with water-in-oil emulsions and rotors are specially designed for this condition. No rotor has yet been designed to take advantage of a tendency to partial coalescence in oil-in-water emulsions because there has been no demand for such an operation. Where a partial coalescence is to be obtained (for water-in-oil emulsions) a high percentage of internal phase will require an adjustment different from that required by a low percentage of internal phase if the maximum of coalescence is to be obtained in each case.

Viscosity and Tension

In this connection we must take into account the viscosity of the oil and the interfacial surface tension of the emulsion. If the surface tension is low, the globules will coalesce when they are brought into contact by subsidence. If the viscosity is high, subsidence will be slow. With a low surface tension (a weak emulsifying agent) and high viscosity, the largest possible volume of oil must be maintained in the rotor; conversely, if the viscosity is low (and subsidence is rapid) while the surface tension is high (and coalescence is difficult) it is not necessary to maintain so high a volume of oil in the rotor, but the rotor must be adjusted to maintain a relatively large volume of intermediate emulsion on which centrifugal force can work to accomplish coalescence.

The adjustment of the rotor must be governed by the quality of results desired by centrifugal resolution. In most industrial applications, results are not perfect. It is usually possible to obtain perfect results from a purely technologic standpoint; but to achieve this perfection it may be necessary to sacrifice economy. In one case of the resolution of a water-in-oil emulsion, four adjustments gave the following results, with corresponding maximum capacities:

1. Water, free from oil; oil, 1 per cent moisture; capacity, barrels per hour, 1.0.
2. Water, free from oil; oil, free from water; Capacity, barrels per hour, 1.5.
3. Water, 1 per cent of oil; oil, free from water; capacity, barrels per hour, 3.0.
4. Water, 1 per cent of oil; oil, 1 per cent moisture; capacity, barrels per hour, 15.0.

Adjustments 1 and 2 show that a change of adjustment may produce a better result at a higher maximum capacity. If the results from adjustment 4 are industrially satisfactory, that adjustment must be selected because of the economic advantage.

Suppose we have an oil-in-water emulsion from which we desire to recover the maximum yield of oil. If subsidence and coalescence are both difficult, the rotor must be adjusted to hold a maximum volume of water and a minimum volume of concentrated emulsion. In other words, in making adjustments coalescence must be sacrificed for yield and a discharged concentrated emulsion obtained instead of free oil. The importance of correct rotor adjustment will be realized when we state that the change of one of the rotor dimensions ⅛ in. may convert a prohibitively expensive operation into an attractively profitable one.

B. S. Accumulations

When "cut production" is dehydrated in the field by centrifuging or by chemical methods, the crude is not made perfectly dry but is merely reduced to 1 or 2 per cent moisture. When this oil is stored for a time at the refineries, the emulsion gradually accumulates in the storage tanks. The accumulation is particularly certain to occur if reagents have been used in the field, because the reagent has counteracted the emulsifying element of the crude.

The method of resolution depends on the percentage of inorganic matter. If the inorganic matter is low, say not over 2 per cent, it is possible to centrifuge direct. In the absence of wax it is desirable to centrifuge at as high a temperature as feasible to reduce viscosity; when wax is present, a high temperature is necessary to melt the wax.

If reagents have been used in the production field, an addition of reagent to the refinery accumulation before centrifuging will be without value. Otherwise the use of reagents may be of value in the case of high viscosity crudes.

When the inorganic percentage is high, it is advisable to free the emulsion from the bulk of the solids before attempting centrifugal separation. To accomplish this the emulsion may be agitated with a solution of caustic soda, soda ash, or sodium silicate, then heated and settled. A portion of the solids may be taken up by the aqueous layer and another portion will collect between the settled layers of oil and water. Supernatant oil, after such treatment, contains a lower percentage of solids and water and can be efficiently freed of both by centrifuging.

Any water-soluble colloid will tend to break the water-in-oil emulsions. Examples of water-soluble colloids that have been used for this purpose are common soap, rosin soap, the so-called soap from petroleum, starch, glue, albumen, casein, and the gums. The soaps of the heavy metals will stabilize water-in-oil emulsions instead of tending to resolve them. The most efficient reagent that we have used for resolving water-in-oil emulsions is sodium-rosin soap containing not less than 60 per cent dry matter. This substance is soluble in oil and can be used to advantage. Aqueous soltuions of rosin soap are no more efficacious than aqueous solutions of common soap or

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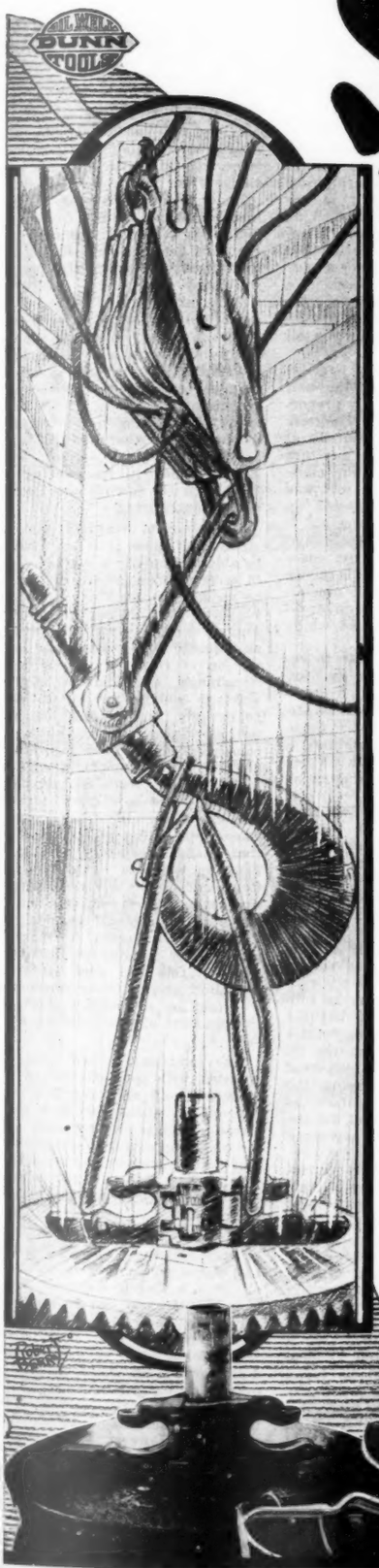

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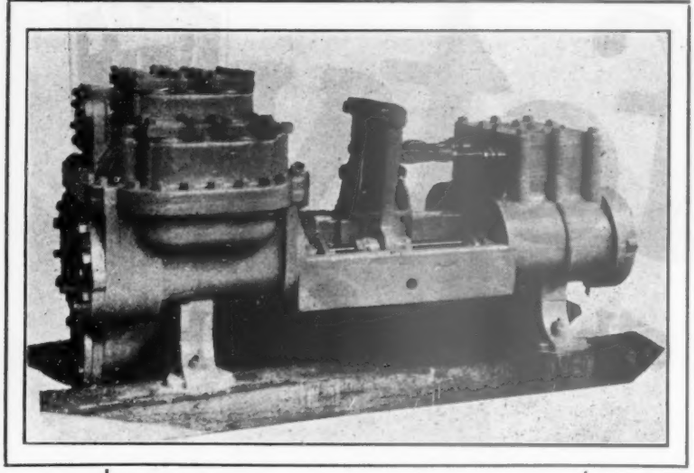

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petroleum soap, but such aqueous solutions are frequently used and are often helpful. Aqueous solutions of starch, glue, etc., will be as efficacious as the soap solutions, especially if a trace of alkali (such as caustic soda or soda ash) is added to the solution of colloid. The theory underlying the use of such substances is that the water-soluble colloids tend to produce emulsions of oil-in-water, and if a trace of such substances is used with an emulsion of water-in-oil, the tendency will be to neutralize the stabilizing effect of the hydrophobe colloid present in the water-in-oil emulsion.

Crude Oil Containing Salt Water

When crudes are distilled continuously, it is of particular advantage to remove the salt water as far as possible in order that the salt may not deposit in the still. There has been some question as to whether the salt in the crude petroleum is all in solution in the emulsified water, or whether some salt is not suspended in the oil in colloidal form. We believe this confusion has arisen from the inaccuracy of the method for the determination of salt by igniting the oil in a crucible.

Careful tests on a number of samples of crude have indicated that the salt content of the crude was directly proportional to the moisture content. The tests were made by removing by centrifugal force various proportions of the moisture content and then determining the moisture and salt in the oil. The salt was determined by a method suggested by Ralph R. Matthews wherein the oil is extracted with acetone and water and the extract is titrated. In most cases where, in cut production, the oil is partly dehydrated by heating, any salt precipitated from aqueous solution is in a relatively coarse granular form in which it readily settles out of the oil.

It can be safely assumed that to reduce the salt content of a crude we need merely to reduce the moisture. A crude oil cannot be completely dehydrated by centrifuging except at high cost. Some of the low-viscosity crudes containing 2 per cent water can be reduced to 0.1 per cent moisture by simple centrifuging at high capacities.

The more viscous crudes, containing under 2 per cent, water can be reduced to 0.1 per cent moisture by dissolving in the oil 0.1 or 0.2 per cent of sodium-rosin soap containing 60 per cent or more dry matter. The oil is then centrifuged at high capacities. Oils containing more than 2 per cent water can be reduced to 0.1 per cent moisture, but the cost is higher. High temperatures for centrifuging are advantageous.

Other hydrophile colloids may be substituted for sodium-rosin soap, but the latter has the advantage of being soluble in oil and by diffusing through the oil it comes in contact with the dispersed water globules. After centrifuging, the oil contains rosin soap in proportion to the moisture remaining in the oil, for the bulk of the soap is in the separated water.

Crudes of very high viscosity cannot be economically dehydrated with rosin soap and centrifuging.

Acid Sludge in Oil

If a lubricating distillate and the necessary proportion of sulfuric acid are flowed independently through a type of centrifugal machine adapted to emulsify thoroughly the acid with the oil, and within the same second to separate the emulsified material and to discharge a sour oil on the one hand and an acid sludge on the other, it will be found that the discharged oil will be practically clear and free from traces or suspended sludge. Furthermore, the discharged oil will be found to have received an acid treat as efficient as the ordinary acid treat in which acid is in contact with the oil for a considerable period. But the discharged sour oil, although practically clear at the moment of discharge, will show more and more turbidity unitl a considerable volume of acid sludge is formed by coalescence and settles out.

This appears to be a case where the viscosity of the oil retards coalescence. In such cases we have not yet seen any reason for treating by centrifugal emulsification and separation. Oils of very low viscosity, such as the kerosene distillates, can be treated in the manner just described with a discharge of a sour oil that will not deposit sludge on standing. In the absence of high viscosity, the coalescence of sludge appears to be complete and immediate.

It may develop that the method of centrifugal emulsification and separation may have some distinct advantages over the usual methods of treating the lighter oils, but the subject has not been exhaustively investigated.

It appears to us that the centrifuge is of greatest value for the separation in some special cases of well coalesced sludge from highly viscous oils. When cylinder stock is treated in the usual fashion and the period of contact of acid and oil is sufficiently great to insure the complete coalescence of sludge, the centrifuge will efficiently separate the suspended sludge from the oil, yielding a sour oil with less acidity than could be obtained by long gravity settling. In general, when acid treats are made in the usual manner and the sludge is permitted to settle out, the supernatant oil may be centrifuged with a considerable reduction in acidity. This is merely because of the removal of traces of suspended sludge that had not settled by gravity. But it has not been found possible to remove all traces of mineral acid from even the low-viscosity sour oils by direct centrifuging.

Emulsions of Sour Oils and Water

In some cases it is an advantage to be able to emulsify a sour oil with water in order that the acidity of sour oil may be reduced by washing. It is generally supposed that contact of water with a sour oil tends to hydrolyze the contained acid sludge with a tendency to the reversion of color compounds to the oil. Apparently this effect can be minimized, although whether or not the effect can be entirely avoided has not yet been proved. In some cases, however, slight color changes are not regarded as important. For example, when a reduced Mid-Continent crude is acid treated, it is said to be a distinct advantage to eliminate the acidity from the sour oil by some method that will avoid the formation of ash-producing substances. The difficulty with the water wash for Mid-Continent crudes is that a stable emulsion tends to form—an emulsion that will not settle out unless reagents are used. The reagents known to refineries are usually ash forming so that the water wash in this way does not accomplish ash elimination. Other reagents are decomposed by the acidity of the oil and the products of decomposition are harmful.

The emulsions formed when water is agitated with sour oils are of the type of water-in-oil and, therefore, require a hydrophile colloid for their resolution. These emulsions are frequently too stable for simple centrifugal separation. They may be resolved by agitating the emulsion with a dilute starch solution and then centrifuging, but the technique is difficult.

We have found it possible to wash a sour oil efficiently without the formation of a stable emulsion by agitating the sour oil with a starch solution. The emulsion thus formed can be completely resolved by centrifugal force. The oils treated in this fashion are clear and dry. When the oils are violently shaken in a 4-oz. bottle with water to which methyl orange has been added no change in color is observable in the aqueous layer, thus indicating the absence of water-extractable acid. However, when oils are tested according to the standard method for acidity, using a 60-per cent alcohol acqueos layer with phenolphthalein as an indicator, and titrating with tench-normal caustic soda, the acidity value of the washed oils amounts to about ½c.c. normal alkali per 100 c.c. of oil. All of the Mid-Continent treated oils seem to give about this result, which would seem to indicate organic water-insolube acid. The washing with starch water removes

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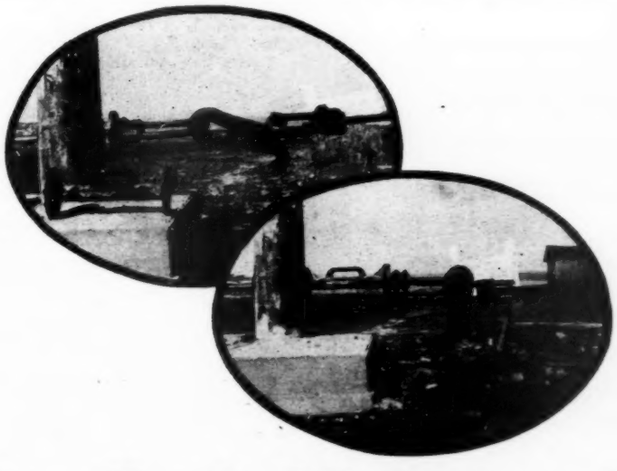

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viscosity of the oil retards coalescence. In such cases we have not yet seen any

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acidity from sour oils apparently to the same extent as contact with finely divided fuller's earth.

If it were considered satisfactory to distill a reduced Mid-Continent crude after such a treatment, ash in the still would be completely avoided. If it is considered necessary to complete the neutralization wtih caustic soda, the neutralization may be made very simply without the formation of a water-in-oil emulsion. A sour oil after a starch wash can be neutralized with a caustic-soda solution of any strength with a quick and complete gravity settling. The caustic-soda solution after settling out is clear instead of being milky. Whether, under these conditions, the soaps formed by the interaction of caustic soda with organic acid are retained in the oil or are completely extracted in the aqueous layer has not been ascertained.

For the starch wash about 0.1 per cent by weight of starch has been found to be sufficient. The temperature at which the starch emulsion must be centrifuged depends on the viscosity of the oil treated. With ordinary reduced Mid-Continent crude averaging about 105 Saybolt viscosity at 100° F., a temperature of 200° F. is used to obtain the highest centrifuge capacities and the most economical operation, but operation is practical at somewhat lower temperatures.

The best results have been obtained by emulsifying starch water with sour oil at normal temperatures, and then warming the oils, centrifuging as soon as the oil has reached the desired temperature. In this way the effect of temperature on the color of the slightly acid oil is minimized because of the brief time during which the oil is hot. The distillates has received little attention, but there would seem to be some interesting possibilities.

Emulsions of Sour Oil and Caustic Soda

When sour oils are neutralized with caustic soda, the products fo the reaction are soap and sodium sulfate, also some free alkali. The emulsions formed are of the type of water-in-oil. The type might be explained by absorption of the basic radicals of the inorganic salts and alkali present.

The soap would tend to stabilize an oil-in-water emulsion. We conclude that the salt concentration in the aqueous phase is high enough to precipitate the sulfonic soap either in such form as to render it colloidally inactive, or else in the form of a hydrophobe colloid. That the sulfonic soap in such emulsions is distributed in the continuous oil phase is indicated by the fact that mere contact of additional water with these emulsions will cause the emulsion to break down. The water appears to extract the sulfonic soap from the oil. It is standard practice to percolate water through alkaline emulsions or to agitate the emulsion with successive charges of fresh water.

Acid-treated oils from which all traces of excess sulfuric acid have been removed by efficient water washing or by filtration through fuller's earth can be agitated with caustic-soda solutions to remove dissolved organic acids without the formation of stable emulsions. This may be explained by the fact that no sodium sulfate is present to precipitate the sulfonic soap.

The absence of sodium sulfate probably accounts, also, for the fact that the seperated aqueous phase contains no emulsified oil. The petroleum soaps are probably too solube in water to function as hydrophile emplsifying agents except in the presence of sufficient electrolyte to give them collodial character.

It is natural that solutions of starch or other hydrophile colloids should not aid the separation of alaaline emulsions. What is necessary for the resolution of an alkaline emulsion is the presence of sufficient water to extract the petroleum soap from the continuous oil phase. There seems to be some advantage in some cases in carrying out the resolution as follows:

From 20 to 60 per cent of water is added to the alkaline emulsion and the liquids are brought into contact by agitation with live steam or mechanical agitators. The hot mixture is then centrifuged at comparatively high capacities. The discharge from the centrifuge will be clear dry oil on the one hand, and reasonably oil-free water on the other. It is possible by this procedure to secure an immediate resolution of the emulsion, which has the effect of improving color and speeding production in the case of viscous oils difficult to wash.

If sour oils have been water-washed before neutralization, immediate resolution may be obtained without the use of centrifugals. The simplicity of the caustic-soda neutralization with the entire elimination of any alkaline emulsion trouble would appear to be a strong argument in favor of water washing of sour oils, provided the water washing can be accomplished in a given case without detriment to color.

CENTRIFUGAL REMOVAL OF WAX FROM ALL LUBRICATING STOCKS

By Leo D. Jones, Philadelphia, Pa.
(Tulsa Meeting, October, 1923)

(This paper describes early methods of centrifugal application, the invention of the solid discharge, the development of the top feed, the effects of chilling and dilution, and the application of these methods to other oils.)

The use of the centrifuge for dewaxing lubricating oils grew out of the effort to secure better results than had been attained by the common "cold settling" process. This process was the only known method for dewaxing steam refined cylinder stock (600° F. fire test), the product known as "bright stock" being commonly used for building up "pressed," i.e., dewaxed neutrals of, say, 200-sec. viscosity to a higher value. The process consisted of mixing the cylinder stock with approximately one and one-half times its volume of naphtha, heating to disssolve completely all the oil and wax and then slowly chilling to about 15° F. in large insulated tanks. This caused the wax to precipitate. It was allowed to settle out by gravity. The supernatant liquid was then drawn off and the naphtha distilled off, leaving a still residue of bright stock. The sediment from the settling, of a slushy nature, was withdrawn. After removing the naphtha by distillation the residue was petrolatum.

At some point in the process, preferably after the dilution but before chilling, the mixture was decolored by percolation through fuller's earth.

The finished bright stock produced by this process had a cold test of about 50° F. Efforts to improve this by chilling to a lower temperature resulted in a considerable reduction in yield, and increased uncertainty of settling. Even when chilling to 15° F. it was not uncommon to find that after a week's waiting a tank had not settled. It was then necessary to heat and rechill. This uncertainty was a serious problem; in one case a refinery superintendent had men riveters hold pneumatic hammers against the tank for hours, hoping thus to cause agglomeration and settling of the wax. Yields of bright stock above 70 per cent were uncommon.

It is not surprising, therefore, that many attempts were made to improve upon the results obtained by cold settling. George H. Taber, vice president of the Gulf Refining Co., Pittsburgh, Pa.,

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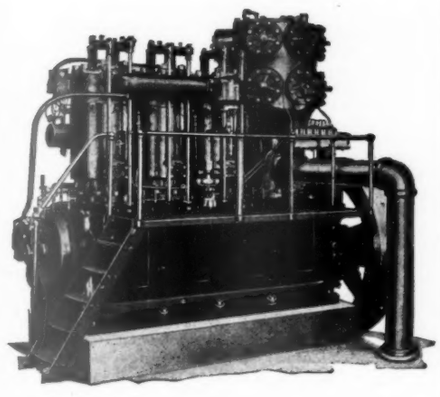

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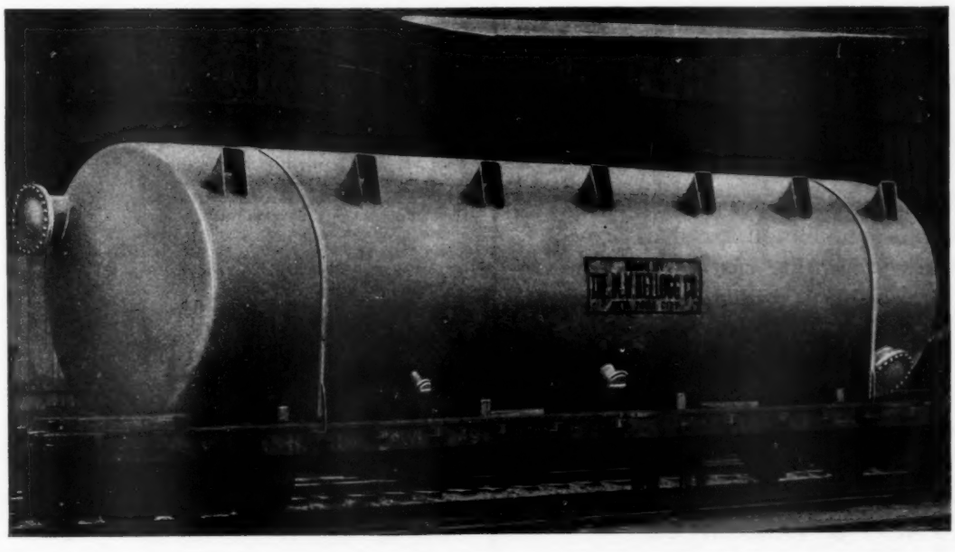

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made a number of experiments with cream separators in 1890 but had done nothing more. The only centrifugals available were of the cream separator type. Such separators are not suitable for the separation of two liquids. They serve only to concentrate a dispersed phase of an emulsion into a fraction of the continuous phase, and it is hardly to be expected that they would have handled a liquid and a plastic solid.

It was shortly after putting into general use centrifugal separators employing the principle of hydrostatic balance that P. T. Sharples took up the investigation. He discovered that the wax, as separated by centrifugal force, differed from the slushy liquid separated by gravity. It was a plastic of too high a "yield" value to act freely as a liquid under the forces within the centrifugal rotor. It was only with considerable difficulty and by using a rotor of the hydrostatic balance type that adjustments could be made to give a discharge of wax and that only for short periods. It was necessary to upset slightly the hydrostatic balance to offset the resistance of the wax to flow, and then a condition of unstable equilibrium was obtained. This was because the resistance of the wax and also its density were not constant, but varied with the time it was exposed to centrifugal force. If, for instance, there was a slight reduction in capacity, this permitted the wax to remain in the rotor longer, with the result that it became more dense and offered more resistance to flow, both of which caused the wax layer to become thicker. Thus the action became cumulative, resulting in overcrowding the rotor with wax.

While the above uncertainty of operation can be minimized by using a centrifugal of much lower centrifugal force, the softer wax obtained and the lower yield of oil make it undesirable.

Solid Discharge

All of this trouble was soon overcome by the invention of the so-called "solid discharge." A stratum of a third liquid substance, heavier than either of the two separated substances, was maintained within the rotor. This served two purposes. One of these was the provision of a frictionless surface on which the wax might float and flow. The second and more important was the provision of a uniform and non-resistant liquid with which to form a hydrostatic balance with the wax-free oil layer in the bowl. The rotor was then adjusted, as if the wax were not there, so as to give a maximum thickness of oil layer without allowing any oil to discharge with the carrier liquid. Any separated wax formed a thin layer between the oil and carried liquid and soon leaked out with the latter. The operation became entirely independent of the condition of the wax and a stable equilibrium was obtained instead of an unstable one.

Calcium-chloride brine refrigerated to the same temperature as the chilled oil was used as a carrier liquid, and fed in such small quantities as to make its presence evident in the wax discharge.

This development of the solid discharge centrifugal rotor with the use of a carrier liquid marked the beginning of the commercial use of the centrifuge in the production of bright stock.

Top Feed

Since the original development an improvement of practical importance has been made in the method of maintaining the stratum of carrier liquid. Formerly it was fed to the rotor with the chilled oil, flowed through the rotor at a very low rate and discharged over the inner edge of a ring on the rotor. The discharge was kept at a minimum. The writer has replaced the feed in contact with the chilled oil by a jet of carrier liquid directed within the above mentioned ring. This is known as the "top feed." When the rotor is empty the carrier liquid flows into it downward instead of upward, but once the rotor has been filled to the edge of the ring any further addition pours out over the edge of the ring. This avoids any necessity for refrigeration of the carried liquid, in consequence of which the economic prohibition upon supplying heat to the wax cover is eliminated, so that the wax may be melted upon its discharge and readily conducted from the centrifuge, also it avoids admixture of the carrier liquid with the chilled oil. This arrangement has eliminated the tendency to produce sometimes a slight cloud in the finished oil and to interfere to a certain extent with wax separation. A higher yield of oil and a better cold test are thus obtained.

Chilling

The effectiveness of the centrifuge in removing the wax from the chilled oil is entirely dependent on the manner in which the diluted oil is chilled. We have found that the most satisfactory method is as follows: A tank provided with brine circulating coils is used as a container for the oil mixture. The coils extend from top to bottom of the tank and are either grouped at the center of the tank or extend around the wall, leaving the center clear. Either arrangement produces a natural convection current down around the coils and upward through the remaining space.

The oil mixture is heated to about 100° F. until all wax is in solution and all moisture settled out. The mixture must become bright, otherwise a faulty precipitation of wax is likely to occur. The mixture is then transferred to the chilling tank. Brine is circulated through the coils at a temperature not more than 10° F. lower than the oil. This differential is carefully controlled so as to give a chilling rate to the oil of about 3° F. per hour. Such control is easily accomplished as follows: A circulating pump is put in series with the coil in the tank, continuously recirculating the same brine through the coil. A regulated quantity of cold brine from the brine cooler is admitted to the suction of the pump and an equal quantity of warm brine withdrawn where the coil leaves the tank. Every hour the oil in the tank is turned over by a slow moving agitator. This insures an equal distribution of temperature and precipitated wax.

Chilling is continued until the desired temperature for centrifuging is reached. chilling by the above method to —10° F. and centrifuging at that temperature will produce a bright stock from most crudes of 15° F. cold test.

Chilling at a slower rate than that given above has shown no advantage in cold test and is more expensive in equipment. More rapid chilling causes an increase in cold test, the increase becoming more rapid as the time of chilling is reduced. A rate greater than 5° F. gives poorer results than chilling more slowly and centrifuging at a higher temperature.

If instead of maintaining a small differential between the brine and oil, slow chilling is accomplished by allowing a small quantity of brine to enter the chilling coil, a portion of the oil is exposed at once to a low temperature, resulting in what we have termed "shock" chilling. As a result the wax is precipitated throughout the oil in a colloidal state, and cannot be separated by gravity or centrifugal force.

It is important, therefore, in order to insure an economical use of refrigeration and an effective use of the centrifuge, first to dissolve the wax completely and then slowly and uniformly chill the mixture to the required temperature for centrifuging.

Dilution

Three conditions must be fulfilled in the dilution of the cylinder stock. First, the viscosity must be sufficiently reduced to permit crystal formation rather than colloidal precipitation, and to permit the removal of the wax after it has precipitated. Second, the density of the mixture must be reduced below that of the wax. Third, sufficient volume of liquid must be provided for free suspension of the precipitated wax.

The first two conditions are easily accomplished by using one and one-half volumes of naphtha of about 60° Be. With some cylinder stock, however, such

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Franklin, Penna.

Franklin, Pa. Apr. 3, 1922.

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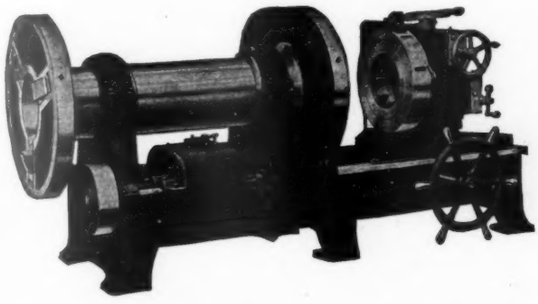

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as those from Wyoming crudes, the wax content is so high that the wax particles begin to crowd each other, joining together before precipitation is complete. Satisfactory separation is then difficult. In some such cases the use of slightly more naphtha than usual is sufficient; in others, better results can be obtained by precipitating half the wax, removing it by centrifuging, and then completing the precipitation by further chilling and re-centrifuging.

Removal of Protective Colloids

The presence of asphaltic material and coloring matter in an oil will lower its cold test. A black cylinder stock, which has a cold test of 40° F., after acid treatment and filtration, will have a cold test of 85° F. These same substances interfere with the precipitation of the wax in the production of bright stock. If a black cylinder stock be put through the dewaxing process, its cold test may be reduced to 10° F., but on treating to a light color, it will rise to 35° F. It is common practice, therefore, in order to carry on the dewaxing most effetively, to refine the cylinder stock to the required color before dewaxing.

Yield

With the cold settling process, it was common to secure a yield of only 70 per cent of bright stock with a cold test of 50° F. The centrifugal separation of the precipitated wax gives a yield of 85 per cent of 15° F. cold test bright stock, because of the greater freedom of wax from oil.

Other Oils

Extensive investigations have been carried out to determine the possibility of using the centrifugal process for the general removal of wax from all lubricating stocks. The results have shown that the process is readily applicable to any stocks containing the wax in an amorphous form, but that additional considerations are involved in the removal of wholly crystalline wax. It has been found especially applicable to what we have designated as "long residuum," that is, a steam-refined still residue, similar to cylinder stock but amounting to about 30 per cent of the crde—all of its lubricant—instead of 15 per cent.

The long reiduum is treated, as is cylinder stock, for wax removal. A yield of 84 per cent of dewaxed oil and 16 per cent of wax are obtained. The finally dewaxed oil contains all of the lubricating content of the crude, without any having been broken down by a cracking distillation as is necessary when neutrals are dewaxed by pressing. The dewaxed residuum may then be split up by distillation into neutrals and bright stock. It is possible by this method of refining to obtain 10 per cent of 200-sec. viscosity neutrals and 15 per cent of bright stock from a Pennsylvania crude, when formerly not over 5 per cent of 200-sec. viscosity neutral was obtained. The cold test of the neutral will be below 25° F. and that of the bright stock below 15° F.

GASOLINE EXPERIMENT STARTS MANY RUMORS

(Continued from Page 68)

for the introduction of the more volatile elements of petroleum such as benzine and naphthas and unless those elements are introduced into the ordinary gasoline, the Patenr Office examiners are very skeptical about the ability of the chemist to increase gasoline efficiency in any way. These experiments relating to the granting of patents are entirely within the scope of the duties of the Patent Office examiner, and there is a large corps of well qualified chemists there to take care of them. The Bureau of Standards does not engage itself in these investigations, but as a rule, takes up problems that may be referred to it from the several departments of the Government.

A very clear line is drawn in defining the work of the Bureau of Standards against efforts with the object of invention. The bureau does not attempt to invent anything. It is ready to standardize with certainty all sorts of processes and by this means its work often is in close relation with inventive work. It is indeed the friend of the inventor, many of whose problems are more readily arrived at with the certainty of knowledge concerning the various physical forces that it is the aim of the bureau to establish. The idea back of the desire to have the Bureau of Standards discover an efficient artificial motor fuel that could be cheaply produced in unlimited quantities sprang from the action of Secretary Lane of the Department of the Interior, who fostered the development of the Rittmann cracking process after so-called independent oil refiners had represented to him that the Standard Oil Co. of Indiana had these cracking processes sewed up in the Burton Patents, and the only way for them ever to be able to compete would be by Governmental aid providing them with some other process as good or better than that controlled by the Indiana company. In that way the Rittman process was patented and the patent rights made available for the use of any one. The disappointment of refiners who had looked forward to the use of that cracking process is very well known throughout the industry, and it appears not to have disappeared from public notice since the Burton and other processes have been made available to anyone by the payment of certain royalties upon the gasoline produced by those processes.

Patent Rights Limited

Those persons who fear the processes of manufacturing an artificial motor fuel may be bought up in a monopolistic way and the industry as a whole prevented from utilizing them, should bear in mind that these patent rights run only 17 years, so that the earliest of these inventions of motor fuel formulas will run out in 3 years. Even the most pessimistic geologists who look forward to the exhaustion of petroleum do not now bring that exhaustion closer than about 20 years, so that long before there can be any necessity for a substitute for gasoline, the files of the Patent Office will be perfectly free of access for enterprising motor fuel manufacturers who will be able to use anything of which there is a record freely and without payment of royalty to anyone.

FALL RIVER REFINERY RUNS 750,000 BARRELS

BOSTON, Oct. 8.—An official of the New England Oil Refining Co. states that the refinery at Fall River is running about 750,000 barrels of crude a month, of which 500,000 barrels is California crude and 250,000 barrels other oils, principally Mexican. The company is using 14 tankers of approximately 10,000 tons each, six of which are owned and eight chartered.

California crude is purchased under a contract, originally a fixed-price agreement, but since revised to the ruling market price on day of shipment. The 250,000 barrels being obtained monthly from sources other than California come under fixed-price contracts.

The company generally has a month's supply of crude afloat. It keeps sold ahead on its refinery products, thus minimizing the risk of loss from price cuts in crude oil market.

EGYPTIAN OIL AREA

A report just issued from the British Commercial Agent at Alexandria, Egypt, says: The area held under petroleum prospecting licenses at the beginning of 1922 was 660 square kilometers, and 14 square kilometers were held under petroleum mining leases. The production of petroleum in 1921 was as follows: Hurghada 178,284 metric tons; Gemsah 4,209; and Abu Durba 175. The output of oil does not, however, suffice for the needs of the country, large quantities of kerosene, benzine and fuel oil being imported.

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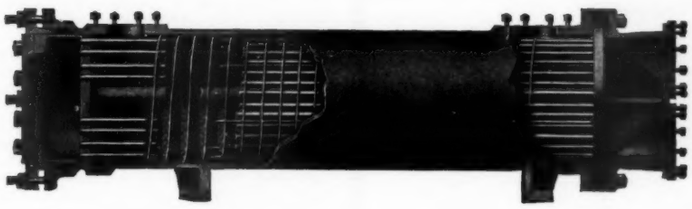

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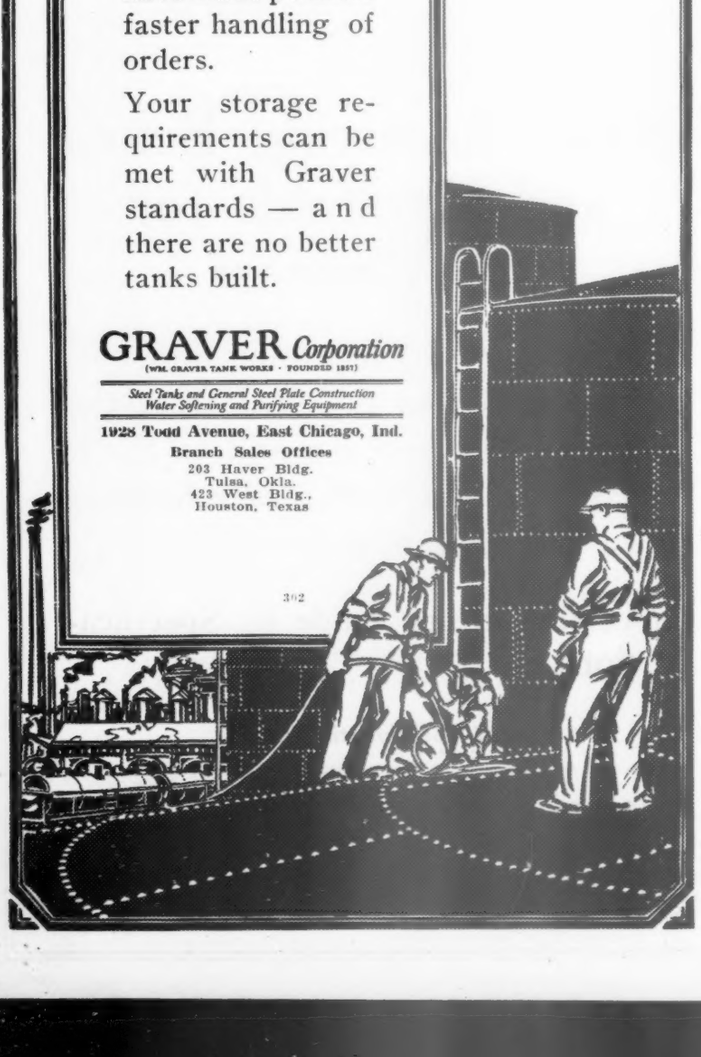

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DANGERS OF DILUTION OF CRANKCASE OIL

(Continued from Page 62)

entry into the war. The next great increase in number of spart piston-parts was in the 1919 to 1920 period, in which the condition of the fuel was such as to be the subject of special meetings of the various petroleum and automobile societies. The maximum end-points for the fuel reached 500 degrees F. as shown by the survey made by the Bureau of Mines in July, 1920, and shown in Fig. 4. This situation naturally would result in greater wear to piston parts, and this is shown by chart of replacements. It was at this time that dilution condition caused a public reaction against the oil and the automobile companies' recommendations for general use of the light and medium oils. The result was that the great and unlooked for demand for the heavier lubricants entirely upset the market and refiners' stocks. Through specifications and cooperative work with the oil industry, the efforts of the Society of Automotive Engineers had some effect in reducing the high peak end-points that were shown by the surveys. The end-points are apparently still high and the rapid increase in replacements continues.

Recent Parts-Replacement Requirements

The consumption of pistons, piston bushings and piston rings increased 1,480 per cent from 1914 to 1923, and that of piston pins increased 1,380 per cent. Registration covering the same period increased only 700 per cent or about one-half that of worn out and replaced parts.

The value of replacement parts has increased from being $11,000,000 in 1914 to be $198,000,000 in 1923; this is an increase of 1,800 per cent. When we add the cost of service labor, the public charge is approximately $450,000,000.

The figures stated do not take into consideration replacement parts for used cars, which are repaired by factory dealers or factory service stations. About 2,000,000 cars per year are so handled. This would add at least one-third more to the consumption figures shown in the chart, and, probably $50,000,000 more to the value. Figured in this manner, the total cost of replacement due to the effects of piston parts wear on the national motor vehicle equipment, is close to $500,000,000 this year, with all indications pointing toward a material increase for the coming years. This is a large sum to assess the public for the privilege of operating poorly lubricated equipment, especially when we remember that this special analysis has not taken into consideration the demand created by new car production. That has been left out of the picture.

If we should allow this condition to continue, we have the history of mechanical development to show that a severe reaction will take place when it becomes apparent that the engine, under present fuel conditions, is no longer commercial. A new type of engine will be developed which will not require these replacements and consequent high cost of operation. Such a type probably will be found in some adaptation of the Diesel engine. A Diesel type of engine will require a much heavier fuel, even a heavier fuel than kerosene. The antomotive industry will be given the task of changing all designs and parts, and the petroleum industry will be required to supply the heavier fuel needed. All this will mean that vast amounts of very volatile fuels of the same quality as the original gasoline for the first engines will need to be disposed of in some newly created market. The present condition of "cracking" the heavier hydrocarbon fuels into lighter fuels will need to be reversed, and a general method found for making heavier fuel products out of the lighter ones.

Practical Improvements

There is a partial remedy that should have been applied some years ago. As the engine fuels became heavier and as they built up dilution, the oils should have been changed more frequently. The rule should be established by the Society of Automotive Engineers in cooperation with the engineers from the petroleum industry, operating through the American Petroleum Institute, that fuels of a certain character, sold throughout any portion of the year, will carry with them a requirement that all engines be drained at stated periods. For instance, with fuels having an end-point of 425 degrees F. the engines should be drained every 600 miles in summer. With present fuels having an end-point of 438 degrees F. engines should be drained every 500 miles. Fuels haveing an end point of 450 degrees F. should require that engines be drained every 400 miles. Winter conditions require drainings at 150 miles less than the periods stated.

Special fuels can be made, the draining periods for which are more extended. The number of miles allowed before draining is required should be posted wherever gasoline is sold. A system of this kind would guide the motor vehicle owner as to what is necessary for the better protection of his vehicle for each grade of fuel. If then, his repair bills are large at the end of the season, none but himself will be to blame.

If the average mileage at which draining should take place should become established and an already worn-out engine shows signs of fatigue under this system of draining, then the new oil used should be of a heavier grade or the draining period should be shortened. This balancing factor is in the hands of every motor vehicle owner and should be applied intelligently for the preservation of the engine. Draining facilities should be supplied by the petroleum industry at its service stations. Garages should add this feature to the service they provide. Weekly drainage schedules could be established by the owners of motor truck fleets to great advantage, even if the miles run per truck should be below 500.

Under such a plan, the entire cost to the public would be that of the additional oil. It is estimated that the total cost for lubrication amounts to about 1 per cent of the yearly upkeep of a car. Doubling this would not be a burden when it is considered that the resale value of the used car can be increased $100 to $200. Securing the better lubrication and operation of the engines without causing an excessive repair bill at the end of one or two seasons by usage of double the usual amount of oil, seems an easy way out of the present difficulties.

Motor vehicle manufacturers should also agree on the proper length of draining periods. At present, they recommend draining periods of from 500 to 1,500 miles. The very best practice should be designated for all makes of vehicle. It is well known that, with a new motor vehicle, the greatest engine damage occurs during the first 1,000 miles of travel. During this period, the vehicle should not be driven above a fixed low speed. Oil should be changed at very frequent periods. On the basis of fuels of the 1923 grade, which have a 438 degrees F. end point, draining for the first 1,000 miles with new motor vehicles should be at the intervals of 250 to 300 miles. This will add at least a year to the life of the vehicle, and this is but little extra attention to pay to the new equipment during its very critical running-in time.

Prevention of Contamination

To prevent contamination of the lubricant in its most insidious form, the engine blocks, pistons, rods, shafts and especially the crankcase should be cleaned thoroughly with liquid cleaner before they are put into service on the block or on the road. The regular service motor oil should be allowed to remain on all surfaces for at least 24 hours, so that the surfaces can become impregnated. This preparatory treatment removes tracts of cutting oils and compounds, paints, varnishes and red lead, all of which contain some animal or vegetable matter; also, it removes emery sand, metal fillings, dirt and other abrasives. Filling with oil and allowing the machine to stand for a short

period affords the bearing metals an opportunity to absorb the first film, and this will offer the best protection possible against wear.

Better devices should be provided for the motorist for draining the engine crankcase. At present, it is a disagreeable task to empty the oil out of the average car engine, and this is one of the factors that prevents ordinary care from being given to this important matter. Draining should be made easy; it should not be necessary to go under an engine to remove a plug. Draining should be made possible from the side of the engine without necessitating the use of special tools. The public should insist on an improvement in engines in this respect. Engines should be drained when warm and they should be flushed out with motor oil. Under no conditions should kerosene or gasoline be used for the purpose of flushing out the crankcase, as portions will always remain in the crankcase to contaminate new oil.

Recommendations

Due to the present fuel situation, dilution of internal-combustion-engine lubricating oil is taking place. This means that the oil soon loses its character as a lubricant, and that it fails to function properly in preventing metal-to-metal contact. Wear takes place under these conditions at an alarming rate, necessitating more than twice the number of replacements of parts that were necessary per car in 1914. Hence, the following recommendations are made:

(1) Engines should be drained at more frequent intervals, so that the lubricating oil can be maintained in a thicker condition.

(2) Kerosene or gasoline must not be used for flushing the crankcase.

(3) Engines should be constructed so that draining can be done much more easily than is true at present.

(4) Greater care should be taken of the engines during the first 1,000 miles of travel of the vehicle during this running-in time, the draining periods should be fixed at 250 to 300-mile intervals.

The increased cost for more oil will not exceed 2 or 3 per cent of the entire cost for operation, and the gain will be in hundreds of dollars because of reduced repair bills and the attainment of better used-car values.

THE PRODUCTION OF PETROLEUM IN PERU

(Continued from Page 74)

encouraged the owners of the lands where this product is found, the development of the petroleum industry dating from this time.

Petroleum deposits are regulated in Peru through the Mining Code, though the House of Representatives has a special bill under discussion already approved by the Senate. Our petroleum legislation is built upon the following principle: Petroleum and similar carbohydrate deposits are the property of the State, even though the surface land belongs to private individuals or concerns. Grants of petroleum bearing lands are made upon application following a declaration respecting the discovery of the deposits, provided such action is not detrimental to the interests of third parties. The law does not require that previous proof be furnished. It is sufficient if the expert, commissioned to survey the land, is satisfied with the probability. Once possession is given to the applicant by the Delegate of Mines, the concession is submitted to the Government for confirmation. The concessionary may hold his concession indefinitely, and even abstain from working it, provided he pays the mining tax. The grant includes the right to work and the unrestricted use of the substance contained within the perpendicular lines bounded by the lot.

The law recognizes transitory or limited concessions, termed 12-month exploration grants which may be extended for one additional year, and dealing with an area embracing not less than 60 or more than 600 lots. These concessions may become permanent upon being divided into parcels of 60 lots each. The Ministry of Development grants the right of exploration and exploitation and issues titles. The unit for oil concessions is a "pertenencia," or lot, a square 200 meters by 200 meters, of an area of 40,000 square meters and 200 meters deep. There is no limit to the number of lots which may be granted because, though the maximum number allowed is only 60 contiguous lots, the law does not forbid the granting to one applicant of several concessions of 60 lots each. All that the law requires is that such lots be grouped to form a rectangle.

The petitioner sends in a written application to the Mining Delegation describing the location, mentioning the name by which it will be known and the number of lots, a revnue stamp of a half-pound sterling (about $2.20) being affixed as a denouncement tax. The official issues the acknowledgement and publishes a notice three consecutive days in the newspapers of the capital and in those of the locality, and on notice boards outside the department. Three months later possessions of the deposits is applied for, when the official, together with the surveyors, the applicant and such persons as may have been notified, meet on the ground, proceed with the survey and delimitation. Before final approval, proof must be submitted that the applicant, individual or corporation, is duly inscribed in the Mercantile Register.

Taxes

The persons to whom such grants are made are required to pay as mining taxes £1-5-0 per lot, half yearly, or £3-0-0 a year (about $12.60) so their rights may not lapse. Concessions for exploitation purposes pay a tax of one "sol" per hectar, or four "soles" per lot (about $1.68). The same amount must be paid in case an extension is solicited, which can only be granted for one additional year.

The mining tax becomes due five months subsequent to the first acknowledgement, and it should be paid up at the time the concession is published in the Record of Mines. Should the owner fail to pay the Government tax for one-half year, he is allowed to pay later, together with an added percentage according to the delay. During February and August, a publication termed the General Record of Mines is issued, which contains a list of all concessions which may be denounced, owing to non-payment of taxes or abandonment. such concessions may be granted anew to other applicants. This legislation will shortly be considerably added to through the passage of the law discussed by the Peruvian Congress, bringing it in harmony with mining legislation of other countries.

Peruvian Production

While we only produced 37,000 metric tons in 1903, commercially valued at about $624,432.20, in 1913 we were producing 348,469 metric tons, with an approximate commercial value of $9,879,613.92. In 1920 Peru had risen to the ninth place among oil producing countries with about 700,619 tons. Statistics of petroleum refining for 1922 show a total production of fuel oil of 282,512 cubic meters or approximately 1,777,000 barrels. In 1922 our production gave us eighth place for we outdistanced Poland and produced more than India and Rumania together. The principal concerns which exploit our deposits are the International Petroleum, the Lobitos Oilfields, Ltd., and F. G. Piaggio.

Briefly summarized, petroleum has been proved to exist practically all along the coast of Peru; the greater development of this industry constitutes one of the country's most valuable factors in its economic progress, while the laws which regulate its exploitation are of the most liberal nature; the one and only restriction consisting in a refusal to grant the right of exploitation to aliens within a zone of 50 miles from its frontiers, a restriction imposed for reasons of national safety. In this and in every other field, Peru opens wide its doors to foreign capital, which is accorded the fullest guarantees.

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PROSPECTS FOR OIL IN COLORADO, GOVERNMENT GEOLOGISTS REPORT

Early in August, 1923, high grade oil was encountered in a well drilled by the Texas Production Co. on an anticlinal fold known as the Hamilton Dome, about 13 miles south of Craig, in Moffat County, Colorado. The oil was found at a depth of about 2,020 feet in beds that lie about 3,000 feet below the top of the Mancos shale, and its presence there was not suspected, for the beds that seem to hold the most promise for oil lie near the base of the Mancos shale, 2,200 to 2,500 feet deeper. The possible amount and value of the oil is not yet known, but even if the oil found is not sufficient in quantity to be of commercial value its occurrence naturally inspires hope that oil in greater quantity may be found in deeper beds, both in the Hamilton Dome and in other anticlines in Moffat County.

Parts of Moffat County were mapped during the summers of 1921 and 1922 by a party of the Geological Survey, Department of the Interior, under the direction of J. D. Sears, who is now preparing a report on the area. This report shows that about 5 miles southwest of Hamilton Dome there is another dome which in some respects is even more attractive than Hamilton Dome as a place to search for oil, and that these two domes are apparently more favorable for oil than any other anticlinal folds in the area studied by Mr. Sears' party.

Shale and Sandstone May Contain Oil

The Mancos shale, of Upper Cretaceous age, caps both the Hamilton Dome and the Seeping Spring Gulch Dome, as the dome 5 miles southwest of Hamilton Dome is called. This shale is about 5,300 feet thick. The greater part of it is an almost homogeneous mass of marine shale, which when weathered dry is light gray or drab, but when moist, as it is when it is taken from a drilling well, is dark gray or bluish gray. A dark platy shale, 175 to 200 feet thick, which contains an abundance of scales and other remains of fish, occurs in the basal part of the formation. This fish scale bearing member may correspond to the Mowry shale, which yields oil at several places in Wyoming. At one place in Moffatt County oil was found in joints and between the laminae of this fish scale bearing member. Above this member is a sandy zone which at some places includes a bed of sandstone. It has been suggested that this zone corresponds to the Frontier formation, which is the most productive oil bearing formation in Wyoming.

In the vicinity of the Hamilton and the Seeping Spring Gulch Domes a thick lens of sandstone (the Morapos sandstone member of unpublished report by E. T. Hancock) lies about 800 feet below the top of the Mancos shale. This sandstone, which forms a conspicuous escarpment, has been removed by erosion from the crests of both these domes. Beneath the Mancos shale lies the Dakota sandstone, also of Upper Cretaceous age. This sandstone, where it was observed at various outcrops in Moffat County, ranges in thickness from 170 to 250 feet. Its lowest member consists of black chert pebble conglomerate and conglomeratic sandstone. Above this is a somewhat variable ledge of thin sandstone, with which is associated a clayey shale that is at many places greenish or purplish. The uppermost member of the Dakota includes white sugary sandstone, quartzite, and conglomeratic sandstone. At some places the conglomerate at the base of the Dakota sandstone is heavily saturated with oil.

Coal Beds Available

The Mancos shale and the Dakota sandstone are the formations that are most likely to yield oil in the Hamilton and Seeping Spring Gulch Domes, but oil may possibly occur in the Nugget sandstone, of Jurassic age, which can be reached by very deep drilling.

Immediately upon the Mancos shale, covering parts of the flanks of the Hamilton and Seeping Spring Gulch Domes, lie the strata of the Mesaverde group (Upper Cretaceous), which in this region have been divided by Hancock into the Iles formation, comprising the basal 1,350 feet of Mesaverde beds, and the Williams Fork formation, which is about 1,600 feet thick. Both these formations contain alternating beds of sandstone and shale and some coal. The thickest beds of coal, however, are in the Williams Fork formation and this fact is of interest to the oil operator, for this coal is an easily accessible and almost inexhaustible source of fuel.

Hamilton Dome

The Hamilton Dome is in the south-central part of Township 5n, Range 91w, and the north-central part of Township 4n, Range 91w. The center of the dome is almost at the southeast corner of Section 33, Township 5n, Range 91w. The town of Craig, which is the terminus of the Denver and Salt Lake Railroad, is about 13 miles distant from the dome by auto road. Water for drilling can probably be had from either Morapos Creek or Williams Fork by a pipe line 1 to 4 miles long. The coal beds of the Mesaverde formation are easily accessible.

The Hamilton Dome has a closure of about 800 feet. It is on the south end of the long Williams Fork anticline, and appears to be by far the most promising part of that anticline. The showing of oil found in the well now being drilled by the Texas Production Co. was found below the center of the Mancos shale at a horizon where, so far as is known, no oil has yet been found elsewhere in Colorado or Wyoming. The oil in the Rangely oil field also is obtained from the Mancos shale, but apparently from a horizon higher in the formation than the oil found in the Hamilton Dome. No sandstone suitable to serve as a reservoir for oil has been observed above the sandy zone that lies about 250 feet above the base of the formation and which should therefore lie about 4,150 feet below the surface at the center of the Hamilton Dome. The most promising sand appears to be the Dakota, which should be found at a depth of about 4,400 feet below the surface.

Seeping Spring Gulch

The Sleeping Spring Gulch Dome is near the center of Township 4n, Range 92w. Its highest part, structurally, is in Sections 22, 23 and 27 of this township. It is about 18 miles by auto road from Craig.

This dome is on the Axial Basin anticline, not far from its southeast end, and it appears to be by far the most promising part of the fold. In fact the combination of structural conditions and deep erosion of the Mancos shale over the top of the anticline make this dome the most inviting structural feature to the prospector in the part of Moffat County mapped by Mr. Sears' party. The closure is probably about 300 feet, although it may be more. The Dakota sandstone should not lie more than 3,000 feet below the surface under the center of this dome, and the Nugget sandstone, of Jurassic age, should lie less than 1,000 feet deeper.

Water for use in drilling would probably have to be piped from either Milk or Morapos Creek by a pipe line 2 to 4 miles long. An abundant supply of fuel can be obtained from the Mesaverde coal beds near by.

OIL LOCOMOTIVE CAPACITY

A report on locomotive oil presented at the fuel session of the Traveling Engineers' Association at the recent Chicago convention said the "consensus of opinion is that the installation of fuel oil burners increased the capacity of locomotives in the neighborhood of 15 per cent."

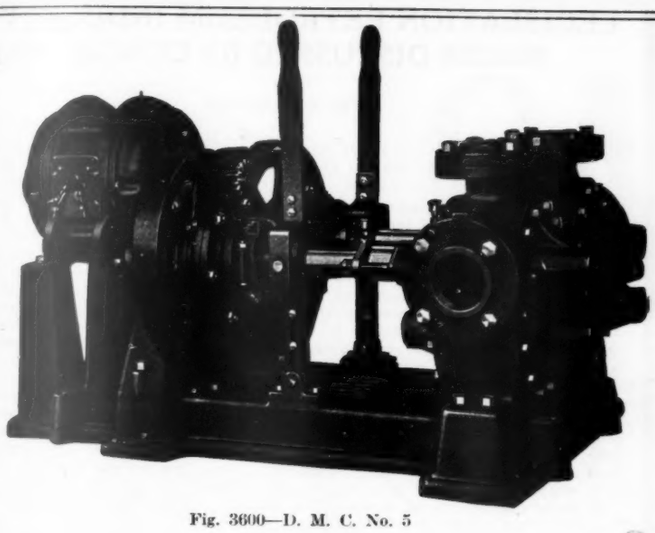

Fig. 3600—D. M. C. No. 5

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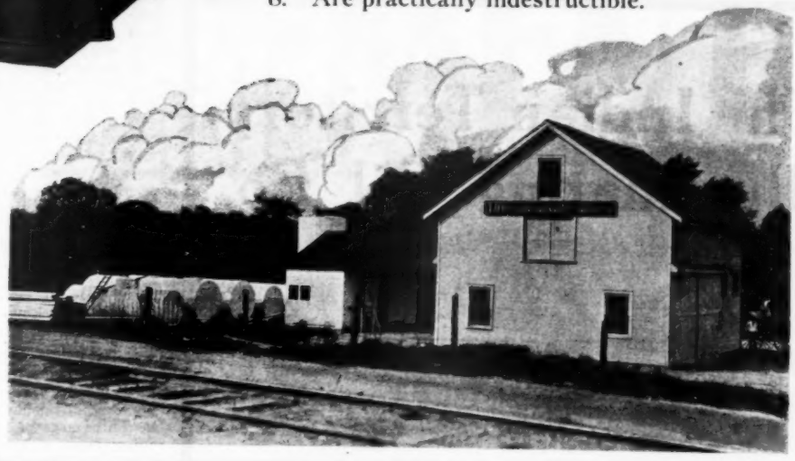

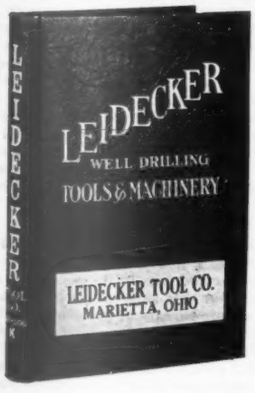

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LEGISLATION PETROLEUM INDUSTRY NEEDS DISCUSSED BY CONGRESSMAN

By E. B. Howard

Congressman, First Oklahoma District, in speech before the International Petroleum Congress, Tulsa, Okla.

Were I to express my opinion on "Legislation and the Oil Industry" in a short and concrete statement, I would do so by saying that like practically all other great industries the oil industry needs little, if any, legislation, and that this industry like most others would be in a better position to function in the interest of all the people to a greater extent if some of the legislation or attempts at legislation which handicap the industry were eradicated and forgotten.

However, I realize that in these days when much enacted or proposed legislation is based upon political expediency that the oil industry, like many others, has been and must expect to be harassed and handicapped in many instances by legislators and politicians who too often seize upon opportunities through introducing and passing in our legislative bodies, laws which for the time appeal to the people, but are not sound fundamentally. This I believe has been especially true in the matter of legislation and executive policies of many States in the Union toward the oil industry in the past few years, and there is little doubt but what the industry will at the coming session and future sessions of Congress be subjected to attempts at passing much legislation seeking to control, regulate and hamper the industry.

Whole Citizenship Affected

I do not seek to deny that relating to all industries there should be some safe, sound and fundamental legislation, but in the passage of such legislation or the enforcement of executive policies toward the oil industry, I respectfully submit for the consideration of all legislators and executives that within the last few years the importance of the oil industry to the entire world has so grown that legislation detrimental to or that in any way handicaps the safe, sound and businesslike operation of the oil industry is just as harmful to the citizens of Nebraska, Iowa, our great cities and manufacturing centers, or any other non-producing fields of America. In other words, it is just as important to the citizenship where oil is not produced that those who do produce it are not handicapped in their efforts to have at all times at hand a supply of petroleum products, as it is to the producer.

In the very recent past there has been in many parts of the United States agitation relative to the prices of the products of crude petroleum—this being especially true in the case of gasoline. It is true that gasoline has been selling on an average at a higher price since 1913 than previous to that time, but I call attention to the fact that all other commodities have likewise commanded higher prices, and as you look through the list which I herewith submit to you, you will find that none of the other commodities listed are selling at as low a price as the chief petroleum product.

Index Numbers of Wholesale Prices, 1923

	May	June
Foods	144	142
Cloths and clothing	201	198
Fuel and lighting	190	186
Metals and metal products	152	148
Building materials	202	194
Chemicals and drugs	134	131
Housefurnishing goods	187	187
All commodities	156	153
Gasoline (1913, .156c)	128	126

These figures should be enough to demonstrate that, not only is the oil industry furnishing gasoline at a low price, which is probably below the cost of production, but by reason of the fact that the oil industry must pay the higher price for everything it consumes, as indicated by the above list, the few dollars received by the oil industry are only worth about 65 cents each in purchasing power.

Few consumers of petroleum and its products realize that at all times, during either a feast or famine in oil, those engaged in the oil industry are busily engaged in developing new oil fields entailing immense investments, many of a very uncertain nature, in order that at all times petroleum and its products may be available to the consumer upon his demand, and that even in days like these when there is a surplus of production everywhere the burden falls heavier upon the industry by reason of its obligation to have its products on hand and available for the consumer in the days when the flush fields have unloaded their production and there is, as has been the case several times during the last few years, a scarcity of crude petroleum.

Supply and Demand

I believe in the law of supply and demand, and I believe that it should be permitted to work in the oil industry as well as in others, but there are certain other considerations which must be taken into account in the case of oil. Since we are under the necessity of accumulating stocks in times of large production to take care of the famine which may always be just around the corner, the public should not demand drastic price cuts immediately when stocks begin to accumulate. The consumer should not demand a paradise in the case of this limited natural resource every time that production exceeds consumption, because, of such were permitted, the industry would be given no opportunity to provide, in times of plenty, for the approaching times of famine.

In my opinion, the economic history of the oil business does not justify hostile Governmental interefrence. The only legislation of which I can conceive with reference to the oil industry, which would be constructive and not destructive, would be appropriate enactments in both the Federal Congress and the State Legislatures whereby the members of the oil industry would be permitted to cooperate for the conservation of petroleum without danger of being indicted for violation of the anti-trust law. During the past summer, this valuable natural resource has been wasted by overproduction and gluttonous consumption at ruinous prices. The public may have enjoyed this for a time but the public will pay the penalty in the end.

There was no way by which the oil industry, which wanted to conserve the supply, could legally do so. At the first suggestion that such an attempt be made, there were threats of prosecution by both Federal and State Governments. This is a short-sighted and erroneous Governmental policy. In view of the great need for conservation of petroleum for future use, the Governmental attitude should be the exact opposite, and the oil industry should be authorized by law, both State and Federal, to cooperate in times of overproduction in any reasonable program of curtailment of production in order that the excess oil may be left in the ground until needed by the public.

During the past summer, some 2 or 3 per cent of the wells in the United States were producing half of the oil. These wells were located in seven or eight flush pools. If the oil industry had been authorized by law to cooperate in holding down the production of these pools, petroleum products could have been marketed at reasonable prices and in an orderly manner, and the country would have been assured of a more adequate supply for future use produced in an orderly manner from the known pools as occasion demanded.

Fundamentally Sound

Any industry which enjoys a constantly and rapidly increasing demand for its products is on a sound basis and I, therefore, believe that the oil industry of this country is fundamentally sound.

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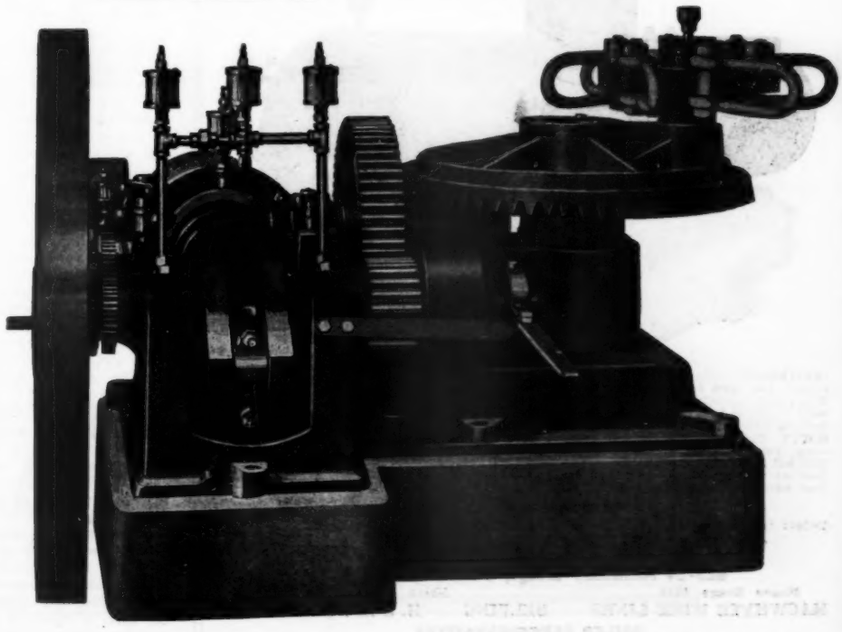

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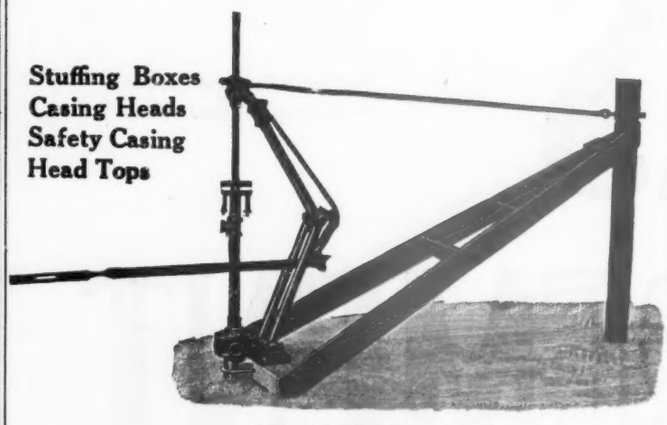

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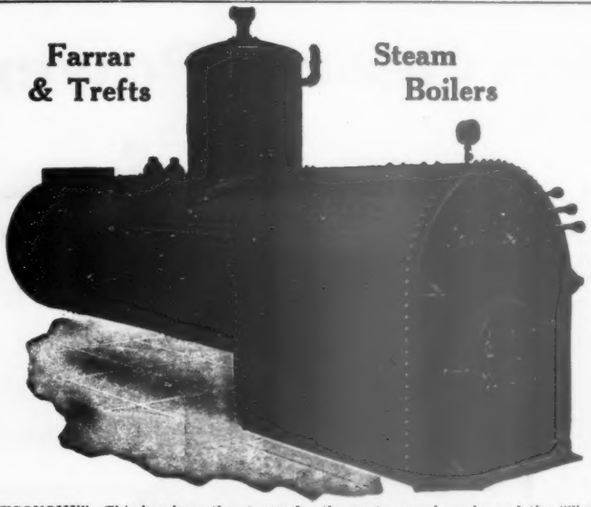

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GOVERNMENT REGULATION OF OIL INDUSTRY

(Continued from Page 86)

companies differently situated in different States of the Union do not operate actly alike. It should occasion no surprise, therefore, that there is a variation in price of gasoline in different States of the Union. On the other hand, this variation demonstrates the existence of competition and that no company or group of companies has the power to fix a price throughout the country. Naturally the largest dealer in any community is the leader and his price is apt to be followed by the smaller dealers, and this is usually the case. The fact, however, that in numerous instances the price is not inaugurated by the principal dealer demonstrates the absence of agreements in restraint of trade and the existence of competitive conditions.

It goes without saying that the Government should guarantee the existence of competitive conditions, and every man who sees the situation from the inside knows that competitive conditions exist, and that, if anything, they are more strenuous than is desirable from the standpoint of either the industry or the public.

Fixing Gasoline Prices

However, after the Government has guaranteed competitive conditions, and honesty in marketing, it ought to leave the industry alone. There are too many fillin gstations. The existence of this superfluity of filling stations is the best evidence of absence of control and of the existence of competition because no industry controlled by a combination would tolerate the enormous waste in unnecessary filling stations.

Should the government fix the price of gasoline, or should it fix the margin between the tank wagon price and the retail price, or should it fix the margin between the tank car price and the tank wagon price? Fixing the price of gasoline, of course, would necessitate fixing the price of crude oil, and I have already demonstrated that that is impossible. Fixing a margin of profit is impossible unless the price of gasoline is fixed. A dozen dealers in the same town might purchase their gasoline at different prices. If a definite margin of profit is fixed and the dealers are required to conform to it, there might be a dozen different prices, with the result that the dealer buying at the lowest price would get substantially all the business, at least to the extent of his supply. If his competitors were allowed to ignore the margin of profit and cut their prices to meet competition, of course the margin of profit would be at an end and the result would be the downfall of its own weight of any regulation based on a margin. Or, let us assume that in one community four or five of the great companies engaged in every branch of the industry are operating company-owned filling stations, in competition with numerous independent filling stations. What would be the margin of profit for the great companies who produce, transport, refine and market their own products? If it is based on the cost of production they would have different costs and, therefore, different prices, and yet, by a fixed margin of profit each would be required to maintain a different price and the independent dealer in the same community would doubtless be required to maintain a higher price because they would be purchasing their gasoline from wholesalers who were adding their margin of profit to the refinery price. Again the result would be that the lowest cost producer would take all the business to the extent of his capacity, with the others prohibited by law from meeting the competition. If, on the other hand, the others were allowed to cut their margins so as to meet the competition, there would be no established margin and the scheme would fall by its own weight. It is, therefore, plain that competition alone can regulate price, and that either price fixing or the fixing of a margin of profit in the gasoline industry, regardless of the legal aspects, is impossible from an economic standpoint.

W. KENTUCKY-TENN.

(Continued from page 52)

for a well on the Brown lease in Pellville and has a rig on the location. Drilling will be started at once. C. E. Daugherty is moving a gasoline rig from the L. Morrison farm to the C. Payne lease to drill for Randolph and Stevenson, who have contracted with their machine for the Chicago Petroleum Syndicate, at Maceo. Bixby, Boop & McDonough are rigging up for a test in the deep sand on the C. Tabor Johnson farm, after plugging the No. 1 in the shallow sand.

In Daviess County

The Chicago Petroleum Syndicate will start a test on the Taylor lease between Yelvington and Maceo. This company, the "wildcatting" subsidiary of the Palmer Corp., of Chicago, is making this test on a large block of acreage in the northeastern section of the county.

In Henderson County the Pennsylvania-Indiana Oil Co. on the Graham farm, near Spottsville is drilling at 700 feet, a rank wildcat.

Warren County Completions

In the same district in which the Dr. Francis well was finished the Cadet Oil & Gas Co. got a 25-bbl. pumper at 650 feet on the Biddle farm, in its No. 20. Machine is moving to next location which will be an offset to the Sandidge farm.

In the Waller-Runner Pool, the Plantation Consolidated Oil Co. finished No. 7 W. A. Goot 75 acres at a total depth of 1 010 feet for 62 bbls. flush. Shale was found from 819 to 905 feet and the sand from 995 to 1,007 feet. No. 8 is drilling at 450 feet.

In the Plano section, east of Bowling Green, J. L. Harper got a 14-bbl. pumper in his No. 4 Upton at 316 feet. No. 5 is shut down at 50 feet.

Allen County Wells

The best well in the Allen County Field, was completed by J. H. Neil & Sons in No. 2 Kerley, near Petroleum. It made 72 bbls. the first nine hours. No. 1, drilled a month ago, is making 30 bbls. No. 1 was 268 feet deep, while No. 2 was finished at 263 feet, immediately below the shale. At Bethel Church, Ray & Co.'s No. 2 made 3 bbls. at 296 feet. At Halifax, Dixon and associates got a duster in No. 1 Potter at 435 feet.

In the Gainesville district, T. A. Sheridan's No. 2 P. Gibson is a 20-bbl. producer at 340 feet; R. E. Wilson's No. 2 fee, 10 bbls. at 312 feet; Karns & Co. got a dry one at 428 feet in their initial test on the S. Hinton farm.

Cumberland-Monroe County

The feature in the Cumberland County area was the bringing in of No. 1 Sam Riddle by E. M. Treat & Co. It is estimated at 50 bbls. at 1,020 feet, 80 feet below the Pencil Cave. Top of the sand was found at 1,008 feet. The importance of this test is that it extends the Bear Creek district 1½ miles in the direction of Modoc postoffice. The Sam Brunton well of the Martsolf Fuel Oil Co. is showing for 10 bbls. at 527 feet. At 574 feet, in the second Sunnybrook sand, it showed for 5 bbls. naturally.

At Sulphur Creek, W. S. Raydure's No. 2 John Riddle is good for 100 bbls. naturally, at around 300 feet in the first Sunnybrook sand. Before the well could be capped in, it broke loose and 500 bbls. of oil was lost.

Kettle Creek

At Kettle Creek, the Huntington-Oklahoma Oil Co.'s No. 2 L. Coffee is dry at 410 feet; W. S. Raydure's No. 1 Sam Smith is drilling at 535 feet, 35 feet below the Pencil Cave.

West Kentucky Completions

Simpson County—J. H. McClurkin's No. 1 A. Slate, dry; W. H. Daniels' No. 1 Ellis, dry; Western Engineering Co.'s No. 12 Pugh, dry; Liggett & Dixon's No. 4 C. F. Butts, 3 bbls.

Calloway County—McMurtry and others' No. 1 near Murray, dry at 600 feet; Davenport Oil Co.'s No. 1 near Murray, dry at 765 feet.

Branch Warehouses and Offices: Tulsa, Okla., Wichita Falls, Texas Carried in Stock by Frick & Lindsay Co., in Kentucky

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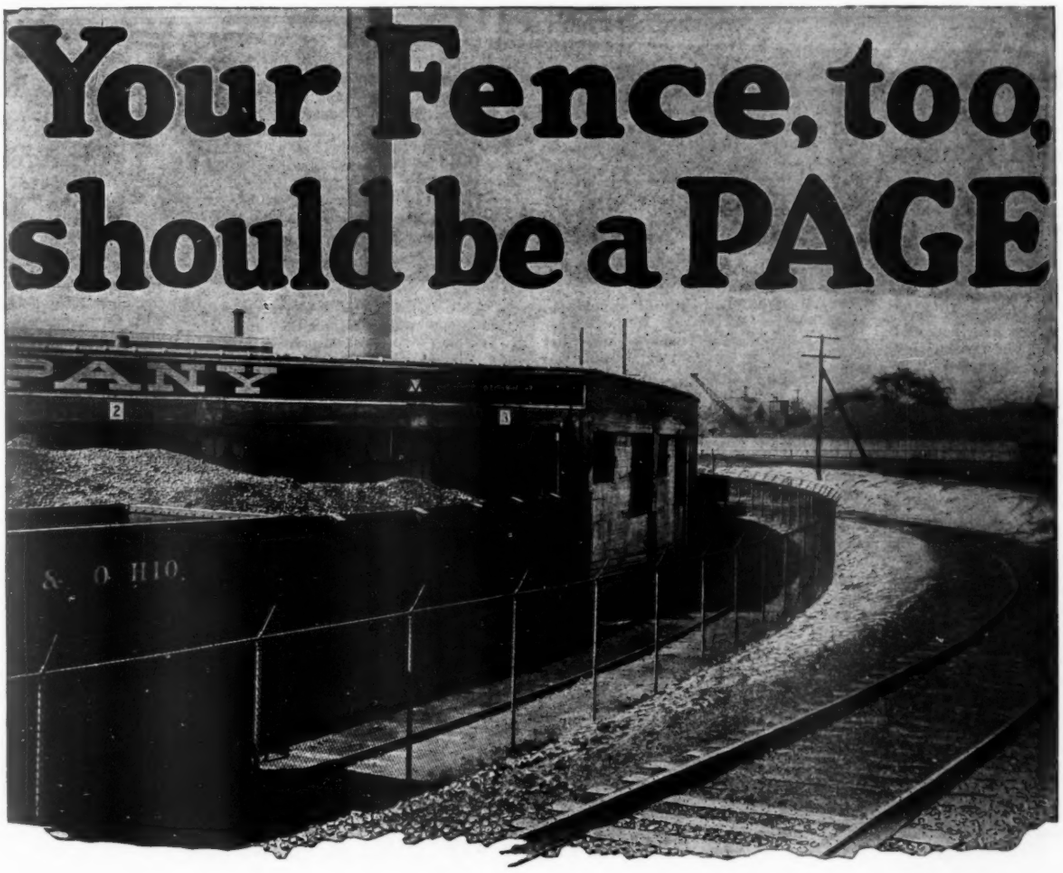

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REFINING AND MARKETING SECTION

California Requests Bureau of Mines for Casinghead Figures

LOS ANGELES, Calif., Oct. 6.—The growing economic importance to the California petroleum industry of natural gas gasoline has reached a point where the output of this product is having a very material bearing on the gasoline production of the State. During the past 18 months the number of casinghead gasoline manufacturing plants has increased 100 per cent in the State and the monthly output of this product amounted to a total of 13,736,904 gallons for August, 1923, in Southern California alone.

For some months, the Statistical Department of the Independent Petroleum Marketers' Association has been campaigning to get the United States Bureau of Mines to compile figures on this product. Recently Wendall C. Hill, petroleum economist of the United States Bureau of Mines, left the Washington office of the bureau and canvassed the situation.

At a general meeting of the statisticians of the local oil companies, held in the offices of the Independent Petroleum Marketers' Association, September 28, a number of the larger oil companies, through their statistical representatives, signed a resolution requesting the Bureau of Mines to compile the casinghead figures monthly. The following is the text of the resolution:

"In view of the petroleum marketing conditions existing in California, and, further, in view of the very important effect which the production and distribution of natural gas gasoline has on said marketing conditions, this meeting of representatives of California refining, gasoline manufacturing and marketing organizations hereby

"Resolves that the United States Bureau of Mines be requested to obtain from the refineries and gasoline manufacturers of California monthly figures showing the production of natural gas gasoline, and, further,

"Resolves, that said United States Bureau of Mines be requested to publish the total of the above figures and segregate them into the total of natural gas gasoline produced north of Tehachapi and the total of natural gas gasoline produced south of Tehachapi.

Signed: Victor W. Killick, Statistician Independent Petroleum Marketers Association of California; E. H. Adams, Manager Gasoline Operators, Union Oil Co. of California; James Mainland, Shell Co. of California; Carl J. Von Bibra, General Petroleum Corp.; Bank Line Oil Co.; Norwalk Oil Co.; Clyde Pilcher, Associated Oil Co.; Amalgamated Oil Co.; Torry H. Webb, Ventura Consolidated Oil Fields; Montebello Oil Co., Oak Ridge Oil Co.; R. M. Keeton, President Signal Hill Gasoline Co.; George L. Tyler, Statistician Pacific Gasoline Co.; H. H. Maxson, Secretary-Manager, Independent Petroleum Marketers Association of California; L. M. Maynard, Consulting Economists National City Bank of Los Angeles; George C. Ellis, Statistician, Merchants National Bank of Los Angeles."

Furthering the action of the oil companies the directors of the Western Statistical Association addressed a letter to the United States Bureau of Mines endorsing the action taken by the oil companies.

To assist the bureau in getting started on this work, Victor W. Killick, Statistician of the Independent Petroleum Marketers' Association, has compiled and turned over to the Bureau of Mines, a list of the casinghead gasoline plants in California and will contribute to the bureau the available statistics now on file in this office of the casinghead companies at present reporting their productions to him.

MARKETERS TO DISCUSS PRACTICAL PROBLEMS

Following the usual custom of the association, the National Petroleum Marketers' Association, in its fall convention to be held at Milwaukee, Wis., October 23, 24, and 25, will devote a large part of the time in discussing the practical problems of the jobbing fraternity. This plan was adopted a year ago in preference to having prepared addresses at their business sessions.

All plans for the convention have been completed. In addition to the business sessions, special entertainment has been provided by the association and the Milwaukee State Association, which is acting as host to the National association. The exhibits will exceed in number any previous convention. The exhibits and business sessions will be held at the auditorium.

Following is the program for the three-day convention, as announced by officials of the association:

First Day—Tuesday, October 23

FINANCE

Cost of Building Stations.
Economy of Investment.
Less Stations—Bigger Gallonage.
Economy of Construction.
Economy of Operation.
Keeping Down Expense.

These subjects are vital to the development of your business. They will be dealt with by men competent to discuss them intelligently.

Second Day—Wednesday, October 24

ADVERTISING AND SELLING

Possibilities of Advertising.
Display—Outdoor Advertising.
Newspaper and Periodical Advertising.
Direct by Mail Advertising.
Selling—Constructive—Destructive.
Interchangeable Coupon Exchange.

You can't run your business and expect to compete with the big interests without good advertising. With good advertising you can strengthen your position and the position of the Independent Oil Industry in your community.

In a sense, this is the most important day of the convention.

Election of officers, 4:30 p. m.

The Second Day—October 24.

Third Day—Thursday, October 25

THE FUTURE IN OIL

Crude Oil Trends:
World Conditions and Facts.
Refining Trends:
Improved Methods.
Distribution Direct vs. Selling Through Jobber.
Marketing Trends:
Spot Buying vs. Marginal Contracts.

On the future of the oil industry depends your future success. It is worthy the trip alone to hear these problems discussed.

TO INVITE JOHN D. REYNOLDS TO BE SECRETARY OF THE A. O. M. A.

By J. B. Waldo

CHICAGO, Oct. 6.—Members of the American Oil Men's Association expressed themselves well satisfied with the success of their convention here October 2-4, particularly in point of attendance, 371 being registered and it was estimated 100 additional. At a special meeting of the directors, Secretary Willard, who assumed that position only as a matter of helping out the organization expressed his desire to be returned to his former position of field secretary and it was suggested that, as John D. Reynolds had resigned as secretary and general counsel of the Western Petroleum Refiners Association, it might be possible to induce him to accept the same position with the American Oil Men's Association. The president appointed as a committee John M. Carson, A. C. Beroth and T. C. Hill to confer with Mr. Reynolds and endeavor to induce him to take the position of secretary and general counsel of the organization.

Richard L. Wotorwich, of the Crew-Levick Co., presented the Henry L. Doherty plan for increasing the sale of oil for heat and power and a committee consisting of Guy Sweney, P. C. Crenshaw and C. A. Gustafson, was appointed to work in close cooperation with the National Association of Oil Burner Manufacturers to do everything in their power to aid the plan.

A committee consisting of A. J. Callaghan, W. A. Anderson and J. J. Thiesen was appointed to assist the standardization committee of the steel barrel manufacturers to reduce the number of sizes of steel packages and to secure uniform specifications.

The president was authorized to appoint a committee to cooperate with the National Transportation Institute to give the public definite and reliable information along the line of the institute's work.

The statement was made that the organization was in excellent financial condition, having a cash balance of $8,500, with all bills paid.

Mr. Marland's Address

Among the interesting addresses delivered during the convention was that of E. W. Marland, who said in part:

"My talk will be but a sketchy outline of the principal points that we all must be interested in this convention. To me the most important is production. This division of the industry is now cut below the legitimate margin. A great number of our independent refineries are now closed and others are drifting to the wall.

"In my opinion the Standard Oil Co. has been, and is the greatest constructive force, as it still is the greatest stabilizing influence in the oil industry today. The public and the producer needs the Standard Oil but the Standard Oil needs a healthy independent competitive marketing, refining and producing system.

"It may be true the Standard Oil inadvertently aided in the reduction of gas and crude oil prices and if these low prices continue the results, as I see them, will be—

"First: There will be no substantial independent interests to support the present market.

"Second: Many bankruptcies and many more drifting that way.

"Independent producing interests have lost billions. They lost $500,000,000 last year. They spent more money drilling wells last year than they received from the selling of oil.

"Several years ago 75 per cent of all

(Continued on Page 129)

Island Refinery Co. Plant at New Orleans Changes Ownership

Plans have been completed providing for the taking over of the plant of the Island Refinery Co. located near New Orleans, La., by the Middle State (Haskell) interests. According to an official announcement the stockholders' protective committee of the Island Oil & Transport Corp. has approved the sale which also includes the stock of the company owning the refinery at Palo Blanco and the $12 000,000 claim against Island Oil & Transport Co. and its subsidiaries. These properties, together with the claims, will be transferred to a newly organized company known as the Gulf States Oil & Refining Corp.

The agreement provides for an exchange of stock whereby one share of Gulf States Oil & Refining Co., Class A, is given for each share of Island Oil & Transport, in addition to which the stockholders of the latter company are asked to pay $3 for each share exchanged.

Acceptance of the offer is recommended by the protective committee as "the huge indebtedness (of Island Oil) of approximately $26.000,000 will be entirely eliminated, with the single exception that the refinery at New Orleans will be subject to mortagage securing $2,275,000 of bonds to be issued in exchange for $5 500 000 bonds at present outstanding, and $725.000 of additional bonds to be sold for the purpose of supplying working capital for the refinery." It also states that upon consummation of the plan representatives of Island Oil interests will be added to the board of Gulf States Oil & Refining Corp.

Gulf States Oil & Refining Corp., incorporated in Delaware, has authorized capital of 4,900 000 shares Class A nonvoting stock and 100,000 shares Class B voting stock, both at $5 par value, of which 1,500 000 shares of Class A and 100 000 shares of Class B will be outstanding. Entire Class B. voting stock will be owned by Middle States Oil, Southern States and Western States oil corporations, larger part being owned by Middle States.

IMPROVING REFINERY

OIL CITY, Pa., Oct. 8.—Despite the fact that the outlook for the oil industry is not especially promising at this time, the plants of the Penn-American Refining Co., at McClintockville are seeing many changes and additions. The company is undertaking a building and enlarging program that will cost several hundred thousand dollars.

The fire on June 21, which destroyed several stills and the coal tipple as well as part of the power house, is partly a factor, although other conditions made some changes necessary. When improvements are completed the Penn-American will be completely equipped with the most modern, efficient and labor-saving machinery. The building program includes the building of a 4-still Fleming process "cracking" plant at the McClintockville plant, the erection of 200 feet of coal tipple, the installation of a new steam boiler plant and the erection of several new stills at the Rouseville plant. An electric generating outfit is also being installed that will furnish electrical power for both plants when completed.

The American Oil Works and the Titusville Oil Works of Titusville, are installing similar plants at the present time.

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Mid-Continent Refinery Runs Decrease

October, Throughput 13,000 Bbls. Daily Less Than August. Plants Operating 32 Per Cent Capacity Compared to 41.8 Per Cent Year Ago.

By C. O. Willson

In spite of the fact that Oklahoma, North Texas and Arkansas districts showed slight increases, the average daily refinery runs of the Mid-Continent area the first week of October showed a total decrease of 12,290 bbls. over the first week of August. The decrease was due to the large slump in Kansas runs and a slight falling off in the runs of the North Louisiana—the other two refining districts of the Mid-Continent area.

A further comparison shows that the total runs of Mid-Continent refiners as of the first week in October were 33,530 bbls. less than the same period of 1922. The Oil and Gas Journal has been making these monthly refinery checks for one year and beginning with this issue in the future will not only show the comparative runs from month to month but also the runs of the previous year on the same date.

Kansas Cause of Decrease

The shut down of several plants in Kansas since the August check was largely responsible for the decrease in refinery runs the first week of October. During the past few weeks The Standard Oil Co. of Kansas, at Neodesha; Sinclair Refining Co., Argentine; Derby Oil and Refining Co. Wichita; Marshall & Co., Sheffield, and the Miller Petroleum Co., Humboldt, have been shut down and in addition several of the Kansas plants have reduced their runs. The plants which were shut down were running 16,100 bbls. of crude the first of August.

The shut downs and curtailments were directly due to market conditions which have brought heavy losses to a majority of the plants not only in Kansas but the entire Mid-Continent area. Up until the past two months Kansas plants were operating nearer capacity than any other refining area. Kansas refiners have a favorable intra-state market for the bulk of their refinery output with the exception of gasolines and in several other respects are more favorably situated than any other refining area of the Mid-Continent.

Shut Down Temporary

The shut downs are probably temporary. At least three of the companies concerned have announced that they will resume operations in the near future. Due to the shut down of the Standard Oil Co. of Kansas plant, the refinery of the Skelly Oil Co., located at El Dorado, now has the largest output of the Kansas plants. The capacity of this has been gradually increased during the past few months and it is now among the first dozen plants of the entire Mid-Continent area in actual output.

If it had not been for the resumption of operations by Cosden & Co. and the Marland Refining Co., Oklahoma would also have shown a substantial reduction in runs. These plants were shut down the first week of August. Cosden & Co. began running crude again the latter part of August and has gradually increased its output until it is now operating about two-thirds capacity. It is understood that the company expects to continue these runs over the balance of the month. The Marland Refining Co. began running crude again in September. According to the official announcement of the company the running of crude was resumed in order to secure stock for its lub plant.

Several plants have made substantial reductions in their runs since August 1. These reductions, however, have been offset largely by plants which have found it expedient to increase their runs. A few plants have been able to buy crude from 25 cents to $1 under the posted price. This has enabled a few to operate at a profit in spite of the low prices for gasolines and they have run as near capacity as their crude supply will allow. The Champlin Refining Co. which, with the Cosden and Marland constitute the "Big Three" of the Oklahoma plants, has reduced its runs to 3,000 bbls. daily, the lowest daily average since the company became one of the major plants of the Mid-Continent. This company buys practically all of its crude supply and the curtailment of its refinery runs is due to its inability to buy a large amount to crude at a price which will enable it to operate at a profit.

Situation in North Texas

The situation in North Texas was largely the same as that of Oklahoma. Some plants increased their runs while others curtailed resulting in total runs which were approximately the same. A large number of refiners in North Texas have been able to buy crude under the posted price than in Oklahoma especially in the Wichita Falls area. Three small plants have started operating during the past two months and substantial additions will be made to the capacity of the North Texas area when plants now under construction in the Powell and Corsicana area are completed.

The total runs of the Arkansas plants have been increased approximately 50 per cent since the first of August. This increase has been largely due to the boost in the runs of the Kettle Creek Refining Co. (Imperial-Great Southern interests) and the Lion Oil and Refining Co., the two major plants of that area. Three of the smaller plants have also resumed operations since August.

There was only a change of 435 bbls. in the total runs of the North Louisiana area in spite of the fact that only four plants are now operating. That area is able to hold its own due to the increased output of the two plants of the Caddo Central Oil and Refining Co., Shreveport.

Capacity Greater; Runs Less

A comparison of refining conditions in the Mid-Continent area at the present time with the same period last year reveals several important developments of the past year. It will be noted that in spite of an increase of approximately 100,000 bbls. in the daily capacity of the plants during the past year, daily runs the first week of October this year were 33,530 bbls. less. Runs in Oklahoma, North Texas and Kansas were all reduced. Refiners a year ago had begun to feel the effects of a constantly lowering gasoline market and the large decrease in runs during the past year in spite of increased capacity is concrete evidence of the refined market situation in the Mid-Continent during the past year.

The comparison with last year shows 11 additional plants. Only seven of these were new plants, however, the remainder being due to old plants which were added to the lists.

Real Mid-Continent Capacity

The comparison shows that only three more plants were operating this year than last. In this situation there is interesting data regarding the real refining capacity of the Mid-Continent area too often exaggerated in the minds of refiners in that section and those outside. The accompanying list shows that 80 of the plants which were shut down a year ago have the same status at the present time and have never been in operation during the past year. These plants have a supposed capacity of approximately 150,000 bbls. daily. Many of these plants have been shut down two and three years having never, in fact, been consistently operated since their erection.

As representing potential capacity in the Mid-Continent area the total capacity of these plants can be discounted approximately 75 per cent. Of the 80 plants probably not more than a dozen could resume operations without an expenditure approximating the original value of the plants. In order that readers may know these plants special designation is made in the accompanyinf list of plants. This will be done in the monthly checks of the future.

Many of these plants were built by promoters who did not intend that they should be operated over any length of time. Others proved to be unfortunately situated in regard to crude supply, transportation facilities and other conditions which enter into the efficient operation of a refinery. It is practically assured that 75 per cent of these plants will never be operated again regardless of how favorable market conditions become in the Mid-Continent area.

Other Dead Wood

A resume of the monthly refinery reviews of The Oil and Gas Journal shows that several additional plants could be added to this so called "dead wood" of the Mid-Continent area.

These are plants which have been operated over brief periods and will probably never be consistently operated in the future. However, there are many plants that are now shut down which under normal conditions would have been operated. These plants must be considered in any attempt to gauge the actual refining capacity of the Mid-Continent area for with the return of normal market conditions a majority of them will again operate.

Based on a total capacity of 801,260 bbls. Mid-Continent refiners, October 1 were operating only 32 per cent capacity in contrast to a year ago when the plants of the same area were operating 41.8 per cent. The increased capacity of the past year was due largely to the additions to plants which have been in operation for some time. In spite of the unfavorable market conditions several of the large companies have added to their capacities. These plants are unusually strongly financed and more favorably situated than the average plants as to crude supplies and market facilities.

In the light of the developments of the past year it is apparent that these larger plants are in a better position to survive in any competitive condition that may develop.

RECAPITULATION

	Number of Plants	Capacity	Plants Op. October	Daily Runs 1st Week Oct.	Plants Op. August	Daily Runs 1st Week Aug.	Daily Decrease in Runs
Oklahoma	109	368,500	56	136,100	54	125,915	*4,185
North Texas	67	216,850	37	55,950	37	54,700	*1,250
Kansas	42	130,900	19	39,250	25	61,640	22,390
Arkansas	18	36,160	11	15,550	9	10,450	*5,100
North Louisiana	20	48 850	4	15,700	6	16,135	435
Total	256	801,260	127	256,550	131	268,840	12,290

*Increase.

OCTOBER, 1922

	No. of Plants	Capacity	No. of Plants Op.	Daily Runs 1st Week Oct.	Increase Over Oct. 1921
Oklahoma	102	327,400	51	145,750	15,650
North Texas	70	207,350	34	64,650	8,700
Kansas	40	102,100	23	58,330	19,080
Arkansas	14	17,510	11	8 350	*7,200
North Louisiana	19	38,850	5	13,000	*2,700
Total	245	693,210	124	290,080	33,530

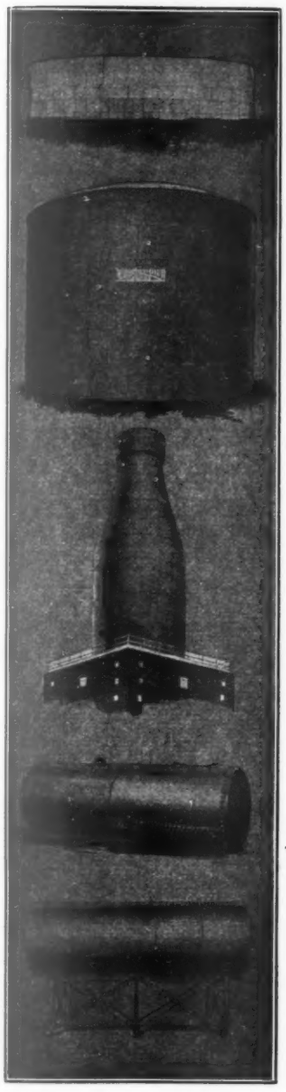
*Decrease. Note—Arkansas and North Louisiana based on November report.

REFINING OPERATIONS IN OKLAHOMA

Name and location—	Daily Capacity	Runs 1st Week October	Runs 1st Week August
*Acme Refining & Pipe Line Co., Jennings	1,000	Shut down	Shut down
Allied Refining Co., Okmulgee	2,000	600	500
*Associated Prod. & Ref. Co., Yale	1,000	Shut down	Shut down
Barnsdall Refining Co., Barnsdall	3,000	2,500	2,800
*Bay State Refining Co. Healdton	1,000	Shut down	Shut down
*Beaver Prod. & Ref. Co., Dilworth	700	Shut down	Shut down
*Big Six Refining Co., Sapulpa	800	Shut down	Shut down
*Bison Refining Co., Quay	1,000	Shut down	Shut down
*Blue Ribbon Refining Co., Walters	500	Shut down	Shut down
Bolene Refining Co., Enid	3,600	1,700	2.750
Bristow Gasoline & Supply Co., Bristow	400	Shut down	Shut down
*Buffalo Refining Co., Yale	1,000	Shut down	Shut down
Burk-Cushing Co., Cushing	1,000	Shut down	Shut down
Cameron Refining Co., Ardmore	4,000	2,400	3,000
Canfield Refining Co., Yale	500	150	250
*Carter Oil Co. Cartoco	12,000	Shut down	Shut down
Champlin Refining Co., Enid	15,000	3,000	7,000
*Cherokee Refining Co., Oilton	1,000	Shut down	Shut down
*Chestnut & Smith Corp., Sand Springs	5,000	Shut down	Shut down
Coleman-Nelson Corp., West Tulsa	2,000	Shut down	500
Coleman-Nelson Corp., (formerly Southern Refining Co.) Haskell	1,000	Shut down	Shut down
Constantin Refining Co., West Tulsa	4,500	Shut down	Shut down
Constantin Refining Co., Devol	10,000	Shut down	Shut down
Cosden & Co., West Tulsa	35,000	19 000	Shut down
Cushing Bank Petroleum Co., Cushing	700	Shut down	Shut down
Cushing Refining & Gasoline Co., Cushing	1,500	1,500	1,500
Cushing Refining & Gasoline Co., (formerly Modern Refining Co.) Blackwell	1,000	300	300
Cyril Refining Co., Cyril	1,200	600	1,000
Daisy Bell Petroleum Co., Wilson	2,000	400	250
*Damascus Refining Co., Lawton	1,500	Shut down	Shut down
*El Dorado Refining Co., Yale	700	Shut down	Shut down
*Equality Refining Co., Oilton	1 000	Shut down	Shut down
Empire Refineries, Inc., Cushing	7,000	3,200	4,000
Empire Refineries, Inc., Okmulgee	2,500	2,500	2,500
*Empire Refineries, Inc., Oklahoma City	2,000	Shut down	Shut down
Empire Refineries, Inc., Ponca City	5,000	3 600	4,500
Francis Refining Co., Francis	500	Shut down	Shut down
*Frederick Refining Co., Frederick	500	Shut down	Shut down
Fairmont Refining Co., (Champlin) Fairmont	2,500	Shut down	1,100
*Federal Oil & Refining Co., Cushing	1,500	Shut down	Shut down
Gilmer Oil Co., (formerly Mid-Continent Refining Co.) Ringling	800	200	200
Glen Braden Refining Co.	1.000	Experimental	
Globe Oil & Refining Co., Blackwell	5 000	1,500	3,800
*Golden Bell Refining Co., Oklahoma City	200	Shut down	Shut down
Grandfield Oil & Refining Co., Grandfield	3,000	2,000	2,000
*Great American Refining Co., Jennings	2,500	Shut down	Shut down
Hewitt Refining Co., Wilson	1,600	900	1,000
*Home Oil & Refining Co., Yale	2,000	Part. Dismtld.	Part. Dismtld.
*Indian Oil & Refining Co. (Biery Oil Co.) Cushing	1,800	Shut down	Shut down

(Continued on Page 112)

Youngstown TANKS



Unity

THERE is a unity of purpose throughout all of the departments of this company. From the sales department to the engineering, from engineering to purchasing, from purchasing to production, we are working toward one end—to make the words "Youngstown Tanks" represent the superlative degree for steel storage.

This unity of purpose demands that our customer receives full value for what he has paid. If anything we want our customer to receive a little more than he bargained for. Therefore we carry the thought of unity to the customer by keeping him sold.

Write for Bulletin

Our new Bulletin 500 is a text book for oil companies and manufacturers figuring on steel storage.

THE YOUNGSTOWN BOILER & TANK CO.

J. P. Kiepe
President.

No. 4 of a Series of Advertisements

The YOUNGSTOWN BOILER & TANK Company
Youngstown Ohio · U.S.A.

gasolines and they have run as near ca- tion.

(Continued on Page 112)

Increase in Total Oil Stocks Much Less

Graphs on Vital Statistics of Industry Show More Encouraging Situation With a Greater Demand and Less Surplus From Production.

By C. O. Willson

The accompanying graphs and table based on government reports for August and price data obtained from the weekly reports of The Oil and Gas Journal up to October 1, indicate several important shifts in the vital statistics of the industry which merit the consideration of all who are interested in its crude and refined markets. The monthly statistics covering production, consumption and stocks, as is customary in the monthly reviews, are based on the latest available reports of the Bureau of Mines, Geological Survey and the Bureau of Foreign and Domestic Commerce. The full report of the Bureau of Mines for August will be found elsewhere in this issue and that of the Geological Survey was carried in the issue of October 4. The prices on crude and refined products are based on the weekly quotations of The Oil and Gas Journal.

CRUDE OIL MARKET—(Barrels)

	August	July	Increase
Total all stocks	449,519,631	445,627 590	3,892,041
Pipe line stocks (gross)	310,459,000	306,032,000	4.427,000
Importers' stocks (not at refineries)	891,000	803,000	88,000
Total refinery stocks	138,169,631	138,792,590	*622,959
Production and imports	73,822 303	73,909,189	*76,886
Runs to stills	52,331,158	52,562,717	*231,559
Total consumption (includes exports)	69,930,262	62,122,535	7,807,727

*Decrease. Note—The dotted line of the accompanying graph includes 14,881,000 barrels representing Mexican stocks in the hands of refiners which was dropped in January report of the Geological Survey, 4,029,000 barrels were also dropped by a Mid-Continent Co.'s pipe line and tank farm stocks on account of a reclassification.

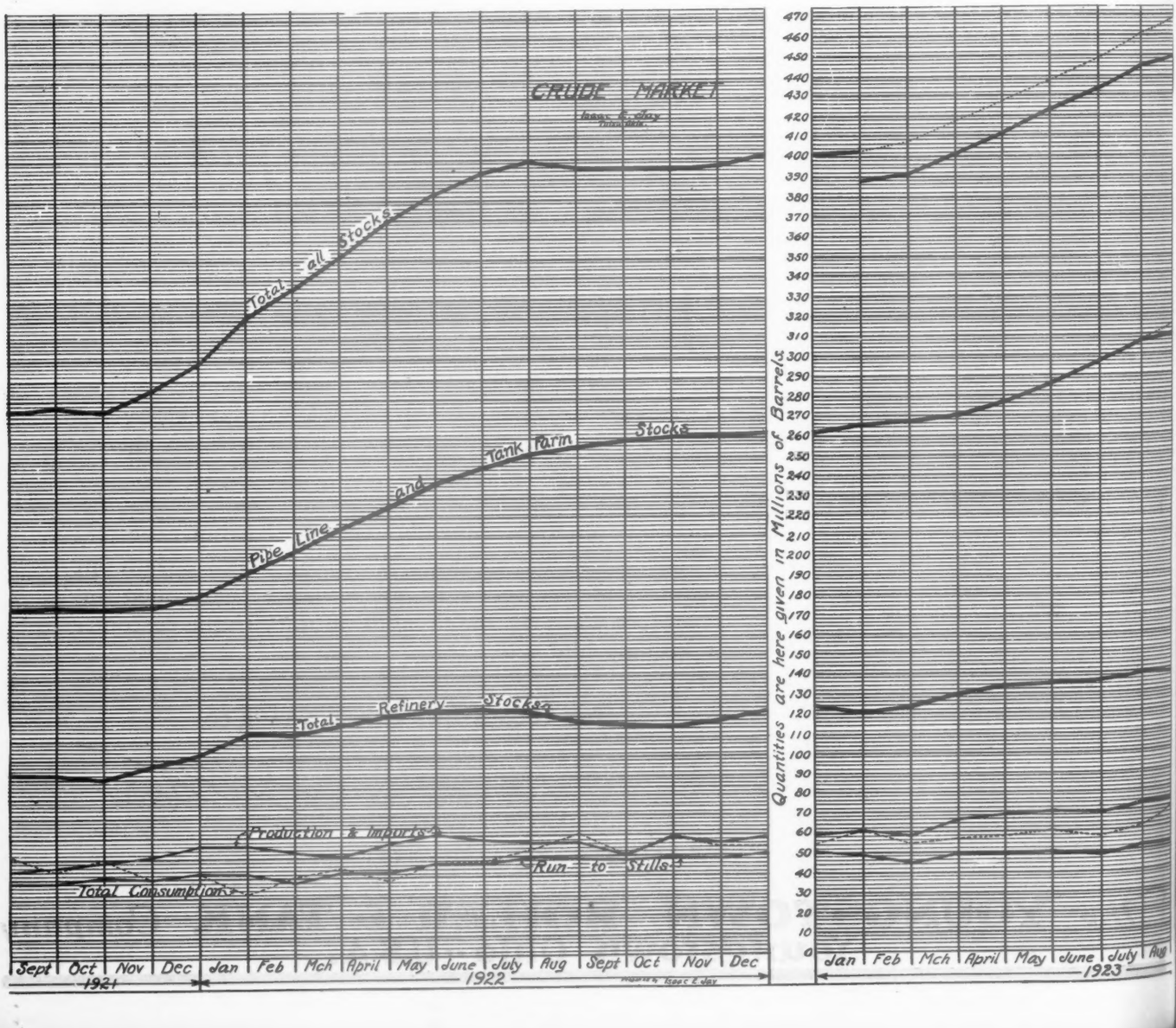
REFINERY MARKET—(Gallons)

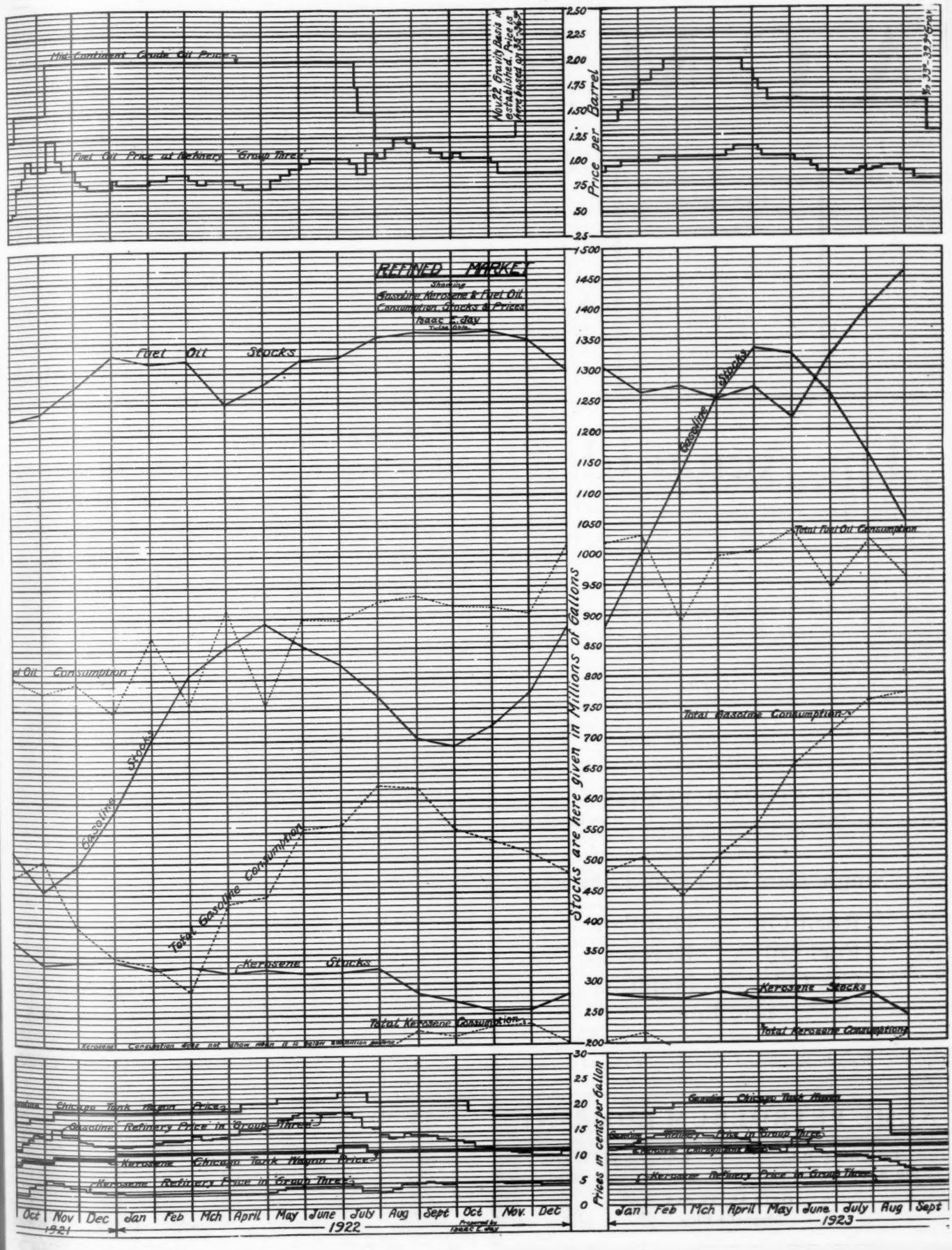
	August	July	Increase
Fuel oil consumption (includes exports)	960,319.639	1,022,713,058	*62,393,419
Gasoline consumption (includes exports)	770,689,085	757,740,566	12,948,519
Kerosene consumption (includes exports)	212,114,269	183,078,466	29 035,803
Fuel oil production (includes imports)	1,021,687,978	1,099,501,741	*77,813,763
Gasoline production (includes imports)	659,155,966	659,546,778	*390,812
Kerosene production (includes imports)	186,271 978	188,237,311	1,965,333
Fuel oil stocks	1,462,182,129	1,400,813,790	61,368,339
Gasoline stocks	1,063,856,221	1,165,389,340	*111,533,119
Kerosene stocks	243,617 556	269,459,847	*25,842,291

*Decrease.

August, according to the government reports, witnessed a slowing up in the large increases in crude stocks, which for months have reflected the overproduction situation which brought both the crude and refined products to their present unsatisfactory status. The total stocks of the country increased 3,892,041 bbls., but this is approximately one-third of the 11,786,654 bbls. increase in July and contrasts favorably with the approximate 10,000,000-bbl. monthly increase which has featured developments since February. This lessened monthly increase in the total stocks of the oil industry was due to the failure of total stocks production to show its usual large monthly increase and also a substantial increase in total consumption. Production and imports during August were 78,886 bbls. less than in July in contrast

(Continued on Page 118)


CRUDE MARKET
Total all Stocks
Pipe Line and Tank Farm Stocks
Total Refinery Stocks
Production & Imports
Run to Stills
Total Consumption
Quantities are here given in Millions of Barrels
Sept Oct Nov Dec Jan Feb Mch April May June July Aug Sept Oct Nov Dec
1921
1922
Jan Feb Mch April May June July Aug
1923


Mid-Continent Crude Oil Price
Fuel Oil Price at Refinery "Group Three"
Nov. 22 Gravity Basis as established. Price is Arrowhead 40 Deg.
Price per Barrel
REFINED MARKET
Showing
Gasoline Kerosene & Fuel Oil
Consumption Stocks & Prices
Fuel Oil Stocks
Gasoline Stocks
Total Fuel Oil Consumption
Total Gasoline Consumption
Kerosene Stocks
Total Kerosene Consumption
Stocks are here given in Millions of Gallons
Chicago Tank Wagon Prices
Gasoline Refinery Price in Group Three
Kerosene Chicago Tank Wagon Price
Kerosene Refinery Price in Group Three
Prices in cents per Gallon
Oct Nov Dec Jan Feb Mch April May June July Aug Sept Oct Nov. Dec
1921
1922
1923
Jan Feb Mch April May June July Aug Sept

ACME

Remember
Acme
Storage
5½
Million
Gallons!

The Acme Idea

There's an Idea back of every business that succeeds. Ideas come to men with imagination and become facts with men of energy. A solid, helpful, progressive idea can take a prosaic enterprise and charge it with business building magnetism.

It's been proved so with Acme.

Acme Petroleum Company is "pinch-hitter" for hundreds of progressive oil men all over America. Acme has 5½ million gallons of emergency storage waiting for you—has buying and selling facilities that blanket the country—and has the knowledge and ability to step up when needed and buy your oil, sell your oil, or store your oil, at a clean-cut profit to you.

Many-sided Service is the Acme Idea. It has made Acme grow and grow and grow. Tie up with Acme whenever you can—grow, too!

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Fuel Oil Kerosene
Gas Oil Naphtha
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KANSAS CITY, MO.
402 Security Bldg.

DALLAS, TEXAS
Magnolia Bldg.

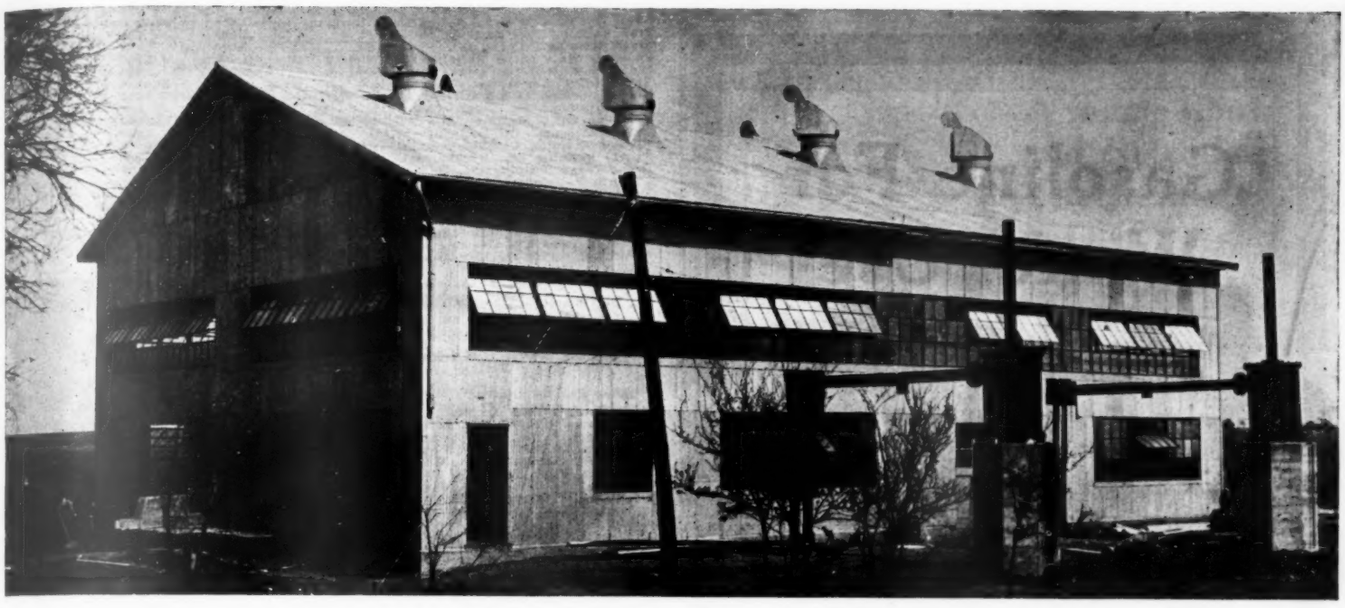
(Continued From Page 108)

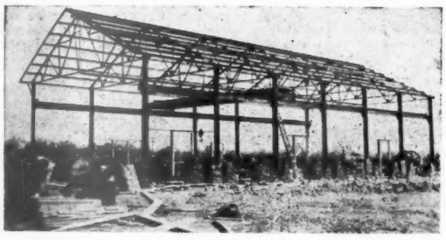
Illinois Oil Co., Cushing	3,000	2,200	1 600
Imperial Refining Co., Ardmore	5,500	6,200	5,500
Indiahoma Refining Co., Okmulgee	9,000	Shut down	Shut down
Inland Refining Co, Cushing	3,000	Shut down	Shut down
Johnson Oil Refining Co., (formerly American Oil & Tank Line Co.) Cleveland	3,500	2,600	2,200
*Lawton Refining Co., Lawton	1,000	Shut down	Shut down
*Livingston Refining Co. Walters	3,000	Part. Dismtld.	Shut down
Lewis Refining Co. (Walker Consolidated) Iowa Park	2,500	Shut down	Shut down
Local Refining Co., (formerly Atwood Refining Co.) Oklahoma City	1,000	800	850
Maud Oil & Refining Co., Maud	400	100	
Marland Refining Co., Ponca City	15,000	5,000	Shut down
Lorraine Petroleum & U. S. Cities Co., (formerly Illinois Refining Co.) Bristow	2,500	1,700	2,000
Marland Refining Co., (Peppers Gasoline Co.) Covington	1,000	350	575
Mecca Refining Co., (formerly Crystal White Refining Co.) Allen	1,500	400	Shut down
*Meridian Petroleum Corp., Okmulgee	3,000	Shut down	Shut down
*Meridian Petroleum Corp., Hominy	1,000	Shut down	Shut down
*Meridian Petroleum Corp., Ponca City	2,500	Shut down	Shut down
*Midco Petroleum Co., West Tulsa	7,000	Shut down	Shut down
*Noble (Chas F.), Oil and Gas Co. (Choate Oil Corp)	2,200	Shut down	Shut down
*North American Refining Co., Pemeta	1,500	Shut down	Shut down
Navajo Refining Co. (Polar) Sapulpa	2,000	500	Shut down
Nyanza Refining Co., Wilson	3,500	700	750
*Oklahoma Star Refining Co., Frederick	500	Shut down	Shut down
Oil State Refining Co., Enid	2,500	500	900
Oil State Refining Co., Allen	600	Shut down	Shut down
Omar Refining Co., (formerly Garber Refinery) Garber	2,500	800	2,480
Oklahoma Prod. & Ref. Corp. Muskogee	2,500	Shut down	1,250
Pawhuska Refining Co., Pawhuska	1,000	Shut down	Shut down
Pauline Refining Co., Hampton	1,200	700	Shut down
Phillips Co., Waite, Okmulgee	6,000	5,000	4,000
Pierce Oil Corp, Sand Springs	9,000	4,750	4,500
Producers & Refiners Corp., West Tulsa	7,000	5,000	5,000
Producers & Refiners Corp., Blackwell	3,000	1,500	1,300
Pure Oil Co., Ardmore	7,000	2,500	3,000
Pure Oil Co., Cushing	6,500	6,000	5,000
*Powerine Oil Co., Billings	500	Shut down	Shut down
Pioneer Petroleum Co., Guthrie	2,500	Shut down	Shut down
Pontotoc Pipe Line and Refining Co., Allen	1,000	....	200
Rock Island Ref. & Pipe Line Co., Duncan	1,500	900	700
*Santa Fe Oil & Refining Co. (formerly Chickasaw Refining Co.) Ardmore	5,000	Shut down	Shut down
Sapulpa Refining Co., Sapulpa	7,000	1,800	4,000
Shaffer Oil & Refining Co., Cushing	6,500	3,750	6,000
*Sheridan Refining Co. (formerly Pirtle-Pittman Refining Co.) Newkirk	2,000	Shut down	350
*Southern Oil Corp., Yale	6,000	Shut down	Shut down
*Southern Oil Corp., Walters	2,500	Shut down	Shut down
Southwestern Oil Corp., (operated by Bolene Refining Co.) Enid	1,800	Re-run	250
Sun Oil Co., Yale	4,000	2,100	1,500
Sinclair Refining Co., Cushing	6,000	4,000	6 000
Sinclair Refining Co., Muskogee	600	500	400
Stanolind Oil Corp., Grimfield	2,000	1,600	1 500
The Texas Co., West Tulsa	10,000	5,750	8,500
Texas Pacific Coal Oil Co., Wynnewood	3,000	2,500	2,000
Tidal Refining Co., Drumright	4,500	2,000	4 200
Transcont nental Oil Co., Bo,nton	3,000	2,000	2,250
Tonkawa Petroleum Co., Tonkawa	2,500	250	110
Transcontinental Oil Co., Bristow	5,000	5,000	5,300
Travis-Center Refining Co., (Western Oil Sales Co.) Beckett	1,500	800	900
Turley Refining Co., (formerly Home Petroleum Co.) Oklahoma City	2,500	350	200
Uncle Sam Oil Co.	1,000	Shut down	Shut down
Union Oil & Refining Co., Grandfield	2 000	1,700	200
*Wagoner Refining Co., Wagoner	500	Shut down	Shut down
Wilcox Refining Co., Bristow	500	450	300
Yale Oil Corp., Yale	1,500	600	1,000
Total	368,500	130,100	125,915

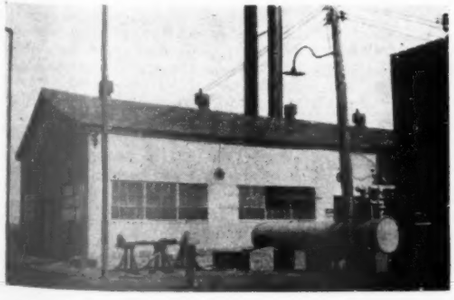
*Shut down one year or longer.

REFINING OPERATIONS IN NORTH TEXAS

Name and location—	Daily Capacity	Runs 1st Week October	Runs 1st Week August
American Oil Corp., Pioneer	2,500	400	1,000
American Refining Co., Wichita Falls	8,000	5,500	4,500
*Associated P. & R., Fort Worth	2,000	Shut down	Shut down
Boner, H. E. Burkburnett	700	150	Shut down
Bridgeport Refining Co., (formerly Associated P. & R.) Bridgeport	1,000	200	200
Buffalo Refining Co., Sherman	500	200	200
*Burk-Texas Refining Co. (Revere), Burkburnett	1,200	Shut down	Shut down
*Bear Refining Co., Burkburnett	1,200	Shut down	Shut down
Clayton Oil & Refining Co., Dallas	3,500	2,000	1,600
Crystal Petroleum Co., Burkburnett	1,000	Shut down	Shut down
De Leon Pipe Line & Refining Co., De Leon	1,000	Shut down	Shut down
Dalford Oil and Refining Co., (formerly Home Oil and Refining Co.)	5,000	Shut down	Shut down
Eastland Pioneer Oil & Refining Co., (formerly Liberty Refining Co.) Cisco	1 000	Shut down	Shut down
Empire Refineries, Inc., Gainesville	6,000	2,750	3,500
*Federal Refining Co., Fort Worth	3,000	Shut down	Shut down
*General Oil Co., (formerly Power Ref) Wichita Falls	750	Shut down	Shut down
*General Refining Co., Abilene	1,500	Shut down	Shut down
Gulf Refining Co., Fort Worth	15,000	5,000	4,500
*Gorman-Home Refining Co., Gorman	1,000	Shut down	Shut down
Griswold Oil Co., (formerly Beacon Refining Co., Henrietta) moved to Electra	5,000	2 000	1,200
Home Refining Co., Swastika	1,000	400	Under Const.
Humble Oil & Refining Co., Burkburnett	1,500	900	900
Humble Oil & Refining Co., Powell	6,500	Under Const.	Under Const.
Interstate Gasoline Products Co., (formerly New Era Refining Co.) Iowa Park	2,000	1,000	300
Invincible Oil Corp., (Montrose) Fort Worth	5,000	Shut down	Shut down
Iowa Park Prod. & Refining Co., Iowa Park	1,500	1,000	750
Keystone Ranger Refining Co., (leased by Griswold Oil Co.) Wichita Falls	2,000	Shut down	1 000
Langley Refining Co., Burkburnett	1,500	Shut down	Shut down
Lone Star Refining Co., Wichita Falls	4,000	Re-run	Shut down
Magnolia Petroleum Co., Corsicana	3,000	Topping	....
Manhattan Petroleum Products Co., (formerly Dixie Refining Co., Wichita Falls	3,500	250	Shut down
Megargel Refining Co.	1,000	500	Under Const.
Miller Petroleum Co., Wichita Falls	2,500	2,000	1,500
Magnolia Petroleum Co., Fort Worth	12,000	4,500	5,000
Mexia Oil and Refining Co. Mona	600	200	200
Noble Oil & Gas Co., Burkburnett	5,000	2,500	1,500
*North Texas Refining Co., Greenville	1,000	Shut down	Shut down
*Owenwood Oil Corp., Burkburnett	2 000	Shut down	Shut down
Oriental Refining Co., Dallas	6,000	500	600
Oriental Refining Co. (Trinity Refining Co.)	3,000	500	Shut down
Odessa Refining Co., Ranger	1,000	Re-run	Shut down
Orient Petroleum Co., Wichita Falls	2,000	500	500
*Pierce Oil Corp., Fort Worth	10,000	Shut down	Shut down
Pauhuska Refining Co., Wichita Falls	4,500	3 000	2,300
*Panther City Refining Co., (Western Oil Sales Co.) Fort Worth	2,000	Shut down	Shut down
The Petroleum Corp., (formerly Beaver-Electra Refining Co.) Electra	2,000	1,000	700
Primrose Refining Co., (formerly Abner Davis) Wichita Falls	1,500	800	500
*Ranger-Wichita Refining Co., Wichita Falls	5,000	Shut down	Shut down
*Ranger Pipe Line & Refining Co., Ranger	2,500	Shut down	Shut down
Ranger Pipe Line & Refining Co., (operated by Hagaman Refining Co.) Tiffin	2,000	300	300







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PITTSBURGH.....Union Arcade Building
PHILADELPHIA.....1220 Jefferson Bldg.
ST. LOUIS.....1794 Arcade Building
SEATTLE.....1301 L. C. Smith Building
BIRMINGHAM.....412 Jefferson Bank Building
PORTLAND.....516 Porter Building

THE AUSTIN COMPANY OF CALIFORNIA
LOS ANGELES.....733 A. G. Bartlett Building
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THE AUSTIN COMPANY OF TEXAS
DALLAS.....627 Linz Building

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Gasoline For Winter Use

Imperial Gasoline is ideal for cold weather. Low boiling point makes for maximum motor efficiency. Imperial gasoline is *straight run*, and contains no cracked gas or high boiling points.

At Ardmore the Imperial Refining Company manufactures a special gasoline 60-62 gravity, 428 end point, with excellent intermediate specifications. Also a new navy grade, 58-60 gravity gasoline embodying the full specifications—the all-year gasoline.

At El Dorado the Kettle Creek Refining Company is producing a special winter gasoline of 62-64 gravity, end point 425 or under, low boiling point, made especially for quick start. We also make at El Dorado the regular new navy gasoline, 58-60 gravity.

Wire us your needs. We control an output of 10,000 barrels of refined products a day.

Imperial Oil Marketing Company

General Offices— Kennedy Bldg., Tulsa, Okla.

GR 558

Skelly Oil Co. (formerly Nortex Ref.) Burkburnett	2,000	Shut down	750
Star Refining Co., Fort Worth	1 500	200	200
State Refining Co., Dallas	1,000	200	300
Sunshine State Oil & Refining Co., Wichita Falls	2,500	1,800	1,400
Tidal Western Refining Co., Burkburnett	3,000	2,000	2,200
Texas Oil Products Co., Waxahachie	2,000	Shut down	Shut down
The Texas Co., Dallas	15,000	7,250	6,500
Tiger Refining Co., Breckenridge	1,500	200	Shut down
Texhoma Oil & Refining Co., Wichita Falls	4,500	3 000	3,500
Transcontinental Oil Co., Fort Worth	5,000	1,200	1,800
*Texoil Refining Co., Burkburnett	1,500	Shut down	Shut down
Travis Refining Co., Burkburnett	1,000	600	400
Great Texas Refining Co., De Leon	700	100	Shut down
Uniform Petroleum Co., Burkburnett	4,000	Shut down	Shut down
Victor Refining Co., Burkburnett	2,000	Shut down	Shut down
Virginia Refining Co., Dublin	4,000	Shut down	Shut down
Wagoner Refining Co., Electra	3,400	2 500	2,000
White Eagle Oil & Refining Co., Fort Worth	5,000.	2,600	3,000
Waco Refining Co., Waco	500	Shut down	Shut down
*World Refining Co., Bridgeport	800	Shut down	Shut down
Total	216,850	55,950	54,700

*Shut down one year or longer.

REFINING OPERATIONS IN KANSAS

Name and location—	Daily Capacity	Runs 1st Week October	Runs 1st Week August
*Associated Prod. & Ref. Co., (Tri-State) El Dorado	1,200	Shut down	Shut down
*Bell Prod. & Ref. Co., El Dorado	700	Shut down	Shut down
Commonwealth Oil & Refining Co., Moran	1,000	150	150
Derby Oil & Refining Co., Wichita	4,500	Shut down	1,500
El Dorado Refining Co., El Dorado	3,500	2,200	1,600
*Equitable Refining Co., (Meccs) Augusta	1,500	Shut down	Shut down
Frontier Refining Co., Hutchinson	2,200	Shut down	Shut down
*Fugatt Giles Corp., Wichita (Blue Ridge)	300	Part. Dismtld.	Shut down
Grant Oil Co. (Lakeside Refining Co.) Augusta	1,000	500	700
Golden Rule Refining Co., Wichita	1,000	500	1,000
Gordon Refining Co., (formerly Great Western Oil Co.) Florence	1,000	Shut down	Shut down
*H. & H. Refining Co., Osawatomie	800	Shut down	Shut down
*Imperial Refining Co., (formerly Uncle Sam Refining Co.) Cherryvale	1,000	Shut down	Shut down
Kansas-Texas Oil & Refining Co., Wichita	1,500	Shut down	Shut down
Industrial Refining Co., (formerly St. Louis Oil & Refining Co.) El Dorado	1,400	Shut down	Shut down
Kanotex Refining Co., Arkansas City	3,500	1,000	1,500
Kansas Oil Refining Co., Coffeyville	1,500	450	550
Kansas City Refining Co., Kansas City	5,000	2,750	4,500
Lesh Refining Co., Arkansas City	2,000	600	1 100
Marshall & Co. (American Gasoline Corp.) Sheffield	2,500	Shut down	1,000
Mutual Refining Co., Chanute	1,000	Shut down	Shut down
Moore Refining Co., (Millikin) Arkansas City	6,000	2,000	3,300
McCree Petroleum Co., (formerly Central American Oil Co.) Baxter Springs	1,000	Shut down	250
McWhorter-Chanute Refining Co., Chanute	500	Shut down	Shut down
Miller Petroleum Co., Humboldt	2,500	Shut down	2,100
Mo-Kan Refining Co., Kansas City	1,200	Shut down	Shut down
National Refining Co., Coffeyville	6 000	4,500	5,500
*North American Refining Co., Rosedale	1,000	Shut down	Shut down
Peerless Oil Refining Co., Chanute	3,500	2,750	2,500
Interstate Refineries, Inc., (Ford) Centropolis	1,500	Re-run	600
Red Bird Refining Co., Fredonia	800	350	Shut down
Richardson Refining Co., (Fidelity) El Dorado	2,500	450	540
Roxana Petroleum Co., Arkansas City	10,000	Under Const.	Under Const.
Sinclair Refining Co., Coffeyville	6,000	250	3,000
Sinclair Refining Co., Argentine	6 000	Shut down	4,000
Skelly Oil Co., (Midland Refining) El Dorado	14,000	10,000	8,000
Sterling Oil & Refining Co., Wichita	5,000	1,800	1,000
Standard Oil Co. of Kansas, Neodesha	12,000	Shut down	7,500
*Tuxedo Oil & Refining Co., (formerly Blue Ridge) Wichita	1,000	Shut down	Shut down
Vickers Petroleum Co., Potwin	1,800	850	1,700
White Eagle Oil & Refining Co, Augusta	7,500	7 000	7,200
Wilhoit Refining Co., Joplin	1,500	650	850
Total	130,900	39,250	61,640

*Shut down one year or longer.

REFINING OPERATIONS IN ARKANSAS

Name and location—	Daily Capacity	Runs 1st Week October	Runs 1st Week August
*Airedale Refining Co., El Dorado	1,000	Shut down	Shut down
Arkansas Oil & Refining Co., Fort Smith	1,000	Shut down	Shut down
Arkansas Prod. & Ref. Co., El Dorado	1,500	500	850
*Abner Davis, El Dorado	60	Shut down	Shut down
El Dorado Refining & Pipe Line Co., El Dorado	1,500	Shut down	Shut down
Farmers Oil & Refining Co., El Dorado	1,000	200	Shut down
Four State Refining Co.	400	Shut down	Shut down
Home Refining Co., Hot Springs	500	Shut down	150
Jones & Co. R. C., El Dorado	1,000	500	400
Kettle Creek Refining Co., (formerly Red River Refining Co.) Pearson	4,000	3,000	2,000
Lion Oil & Refining Co., El Dorado	8,000	7,000	4,000
McMillan, Fehiman & Oliver (operating New Ark Refining Co., El Dorado	1,500	400	375
National Petroleum Products Co., El Dorado	1,500	Shut down	Shut down
Pine Bluff Refining Co., Pine Bluff	1,000	800	600
Root Refineries, El Dorado	3,000	2,000	2,000
Shippers Petroleum Co. El Dorado	700	500	Shut down
Union Pipe Line & Refining Co., El Dorado	4,000	650	Shut down
Arkansas Refining Co., Picron	3,000	Shut down	Shut down
Total	14,660	15,550	10,450

*Shut down one year or longer.

REFINING OPERATIONS IN NORTH LOUISIANA

Name and location—	Daily Capacity	Runs 1st Week October	Runs 1st Week August
Caddo Central Oil & Refining Co., Shreveport	3,500	3,200	3,000
Caddo Central Oil & Refining Co., Shreveport	7,000	5,500	3,335
*Crescent Oil & Refining Co., Cedar Grove	600	Shut down	Shut down
*General Oil & Refining Co., Oil City	2,000	Shut down	Shut down
*General Oil & Refining Co., Homer	1,000	Shut down	Shut down
*Great Southern Prod. & Ref. Co., Ardis	2,000	Shut down	Shut down
*Homer Refining Co., Homer	250	Shut down	Shut down
*International Oil & Refining Co., Shreveport	800	Shut down	Shut down
*Leestone Refining Co., Shreveport	800	Shut down	5,000
Louisiana Oil Refining Corp., Shreveport	9,000	4,000	Shut down
Louisiana Petroleum Prod. Co., Bossier	3,000	Shut down	Shut down
*Paramount Refining Co., Vivian	3,000	Shut down	Shut down
*Paramount Petroleum Co., Superior	3,000	Shut down	300
Red River Refining Co., Crichton	1 800	Shut down	Shut down
*Rogers Refining Co., Shreveport	700	Shut down	4,500
Shreveport Prod. & Refining Co., Shreveport	4,500	3,000	Shut down
*Sunset Refining Co., Palquemine	600	Shut down	Shut down
*Tarr Island Refining Co., Morningport	300	Shut down	Topping
The Texas Co., Ardis	3,000	Topping	Shut down
*Union Refining & Pipe Line Co., Oil City	1,000	Shut down	Shut down
*Union Refining & Pipe Line Co., Homer	1,000	Shut down	
Total	48,850	15,700	16,135

*Shut down one year or longer.

CHICAGO TANK WAGON DRIFTS LOWER

Price Cutting in 1,400 Localities Cited and Rumor of Another 2 Cents Cut. Credit Method Change May Result From Present Uncertainty in Market. Kerosene Firm. Fuel Oil Quiet. Lubricating Oils Unchanged

By J. B. Waldo

CHICAGO, Oct. 8.—The outstanding feature of the week has been the drift of the tank wagon prices to lower levels at a time when every oil man states most emphatically they are losing money at the regular tank wagon prices on gasoline. The reduction of 1½ cents in the tank wagon price for kerosene is seen by most of the local oil men as a direct result of the cutting of prices for gasoline for it is difficult to make the consumer believe that kerosene should sell at a price very close to the price of gasoline and in a number of localities in this territory at a lower price.

The evident reluctance of the major organizations to reduce the price on gasoline must be perfectly manifest to the trade by this time. During the past week an executive of the Standard Oil Co. stated in general conversation that at the office of that organization they had on file the evidence of 1,400 localities where cuts in price had been made by independent dealers. He did not say at how many the Standard had met the cut but presumably it was at all the places where the gallonage made it worth while. With various prices ruling at that number of stations there is evidently wide-open competition with the usual result of such price wars that nobody is making any money.

The concerns making the initial reductions in these cannot, for one moment, expect that they are going to make the major organizations lie down and let them have their trade. They must know the larger companies have infinitely greater resources and can stand losing money much longer. The other alternative must be that they are either losing business and think it is being taken away from them by price concessions which they must meet or they are contemplating a change in business of some kind or are forced to liquidate their assets. Did it ever occur to any such concerns that the credit departments regard with suspicion price cutting by a customer and are very likely to refuse credit to such price cutters.

Credits have been very loose in the petroleum industry. With many concerns it has seemed the best policy to sell any buyer who was not known to be actually a crook and let the occasional loss be covered by the greater profits that accrued from such a credit method. In the past the failures have not been heavy in the jobbing end of the oil industry compared with the volume of business, and have seldom exceeded a safe percentage but under present conditions there is a different method necessary if the sellers are not to make unreasonably large losses. This is one result of the present price structure when it is doubtful if the jobber is making money in his business under the majority of conditions.

The local trade is on tenter hooks as the present price structure and rumors have been circulated that one of the major organizations other than the Standard Oil Co., (Ind.) is about to make a reduction that will put its prices on a level. The amount given in these rumors is 2 cents on gasoline. On Friday there were several announcements of reductions in prices at different points and these were all for 2 cents, which seems to emphasize the possibility of a 2-cent reduction.

Prices are practically unchanged here. Just at the close of the week, there were several refiners who stated that their price was 7 cents, no less, but they have in each instance a good outlet either in the shape of contract customers or their own distribution. All week there have been offerings and not scanty ones of New Navy gasoline at 6½ cents. The demand is for the Navy grade, with sellers of blends reporting a better demand for their product. Natural gasoline continues very firm and hard to get. There was some business done at the A. O. M. A. convention but nothing remarkable and the trade did not expect too much as this is not the season of the year for large immediate business but some did complete good contracts for the coming year.

Kerosene Firm

The reduction in the tank wagon price of 1½ cents through all of the territory, except in North Dakota where the price is reduced 2.1 cents, has not yet made any difference in the refiners' prices. There is a fair margin for the jobber at the reduced price and offerings are not large. The market is around 4½ cents and is stronger than before the reduction in the tank wagon. The sale of distillate is still important and the market is strong as the season of its greater use for heating approaches.

Fuel Oil Quiet

The market for fuel oil continues to perplex a number of sales managers who state there is very little offered but the demand is not active and prices are a little lower than a week ago, with very little selling at 90 cents and some refiners placing the best price at which they put through sales at 87½ cents. This is only a continuation of the situation as reported last week. The Middle West plants report they are well sold ahead and it is evident considerable business that formerly came to the Mid-Continent refiner is going elsewhere, either to the refineries in the Middle West and in the South, where the freight rates favor shipments from New Orleans and similarly located districts, or to the Atlantic Coast refiners who are securing their crude from California at a price that enables them to extend their trade inland.

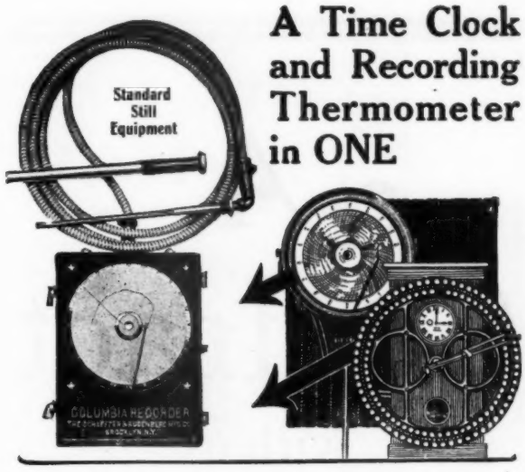
Gas oil shows no change and continues weak and practically neglected. What with refiners not buying for their process stills and the gas companies turning to other heavier oils, as many of them can for enrichment oils, the demand is slack and supplies not large but at present ample.

Lubricating Oils Unchanged

The demand continues very good and leading refiners state their business is excellent, so good they are not making much progress in catching up with orders. They believe that present conditions as to stocks will last well into next year and that it will be spring at least before conditions as to supplies of the wanted stocks change. The neutrals in the 200, 250 and 300 viscosity are in heavy demand, as are bright stocks. Steam cylinder stocks are active and firm. In fact the entire line is doing business on a good scale with the above preferences shown by buyers.

Tank Wagon Prices

The Michigan Refining Co. cut the gasoline price 2 cents at Detroit on Friday but at this writing the Standard nor the White Star Refining Co. have met the cut. Some of the smaller distributors have made cut of 1 cent in Chicago and the coming week is awaited with much anxiety by the trade.



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FUEL OIL REDUCTION FEATURE OF EASTERN REFINED MARKET

By N. O. Fanning

NEW YORK, Oct. 8.—The feature of the Eeastern refined oil market during the week was a reduction in the price of fuel oils. Bunker fuel oil at New York was reduced 15 cents per barrel to $1.45, lighterage 6½ cents extra. Diesel oil is now quoted at 3¾ cents per gallon at refinery, while gas oil is 4¼ cents per gallon. Furnace oil remains unchanged at 10 cents per gallon, delivered, while distillate fuel oil is also unchanged at 7 cents per gallon for lots of 1,250 gallons or more. The latter is used in certain types of oil burners for home or apartment house use.

The importance of lower prices for heavy oils is recognized in view of the growing public demand for oil burning equipment. The demand for fuel oils for land installations has been increasing steadily during the last few months, but unfortunately (or fortunately, perhaps), the demand for bunker fuel oils has fallen off considerably. Viewed from a practical angle, the decline in the demand from the two latter sources should act as a stimulation for the demand for the lighter fuel oils for oil burning equipment in land installations.

Bunker Demand Drops

Lower prices for heavy fuel oils can be traced to no other source than the decline in consumption of bunker oils and drop in the export demand. The supply of heavy oils has not expanded to any extent, although there is a large stock and a large enough production for all current needs. Mexican oil output is steadily falling off. California, it is believed, will also show a steady decline from now on, so that local fuel oil manufacturers will probably have to return to the Gulf Coast and Mid-Continent fields for heavy crudes until the fields of Venezuela and Colombia are more fully developed.

All indications are that the day of heavy fuel oils is coming, and American refiners will have to bend all efforts toward encouraging the output of heavy crudes. There is more than enough light oil being produced now, but if California declines, more of this will be needed too, from other sources.

In some quarters it is stated that a largely increased demand for heavy oils and continued low prices for gasoline will bring about higher prices for furnace oil, bunker, oil and other heavy fuel oils, which in turn will serve to reduce consumption. However, the fuel oil situation cannot be compared to gasoline, inasmuch as the barrelage demand for fuel and gas oils is 50 per cent greater than for gasoline. It is evident, therefore, that the price of the former will not have to go as high as gasoline, if the oil industry must be content with low prices for the latter, inasmuch as refiners can be content with a smaller margin of profit in view of increased barrelage demand.

Gasoline Situation Uncertain

The gasoline price situation on the Eastern Seaboard continues uncertain. There has been no appreciable letup in the peak demand and yet the price tendency is more downward than upward. However, the oil industry, at least in this section, has long since decided that it must seek profits, if any, from the sale of other products.

Kerosene Weak

Another unusual situation in the Eastern markets is that the demand for kerosene has been falling off considerably, and stocks, which have remained about even for months, are beginning to increase. Kerosene has been one of the strongest products this year, and the present weak tendency represents the first break so far

Lubricants Lower

Lubricating oil prices have been quite irregular, and the present situation finds prices about 1 cent per gallon lower than in midsummer. The statistical position of this branch of the refining industry is stronger than in any other, however. Stocks have been going down throughout the year. Lower prices are believed to be the result solely of lower prices for Pennsylvania and Mid-Continent crudes, combined with competition from California.

The Standard Oil Co. of New Jersey and some other large owners of tanker fleets have taken a few of their shops from the California trade and put them back into the trade between Mexico and the American Atlantic and Gulf Coasts. As a result the receipts of oil from Mexico have shown a notable gain. Shipments to south Atlantic ports are increasing, apparently in anticipation of a large winter demand. The Standard's Charleston refinery, which has been partially closed down, is now understood to be running at capacity once more.

The following table shows estimated daily average receipts of crude and refined oils by water at the principal Atlantic Coast ports for the last two weeks and for the months of September and August, in barrels:

	—Week ended—		—Month—	
	Oct. 5	Sept. 28	Sept.	Aug.
New York	187,000	289,000	193,000	214,000
Philadelphia	133,000	74 000	76,000	110,000
Baltimore	52,000	63,000	59,000	33,000
Boston	15,000	41,000	23,000	24,000
Fall River	30,000	41,000	15,000	15,000
Providence	11,000	39,000	21,000	23,000
Norfolk	9,000	.....	8,000	8,000
Charleston	28,000	4.000	2,000	12 000
Miscellaneous	25,000	41.000	23,000	13,000
T'tl daily av	494,000	592,000	420,000	466,000

The feature of the movement continues to be large receipts from Mexico. During the week ended October 5 the receipts from Mexico, Trinidad and Peru exceeded 1,100,000 bbls.

START NEW REFINERY

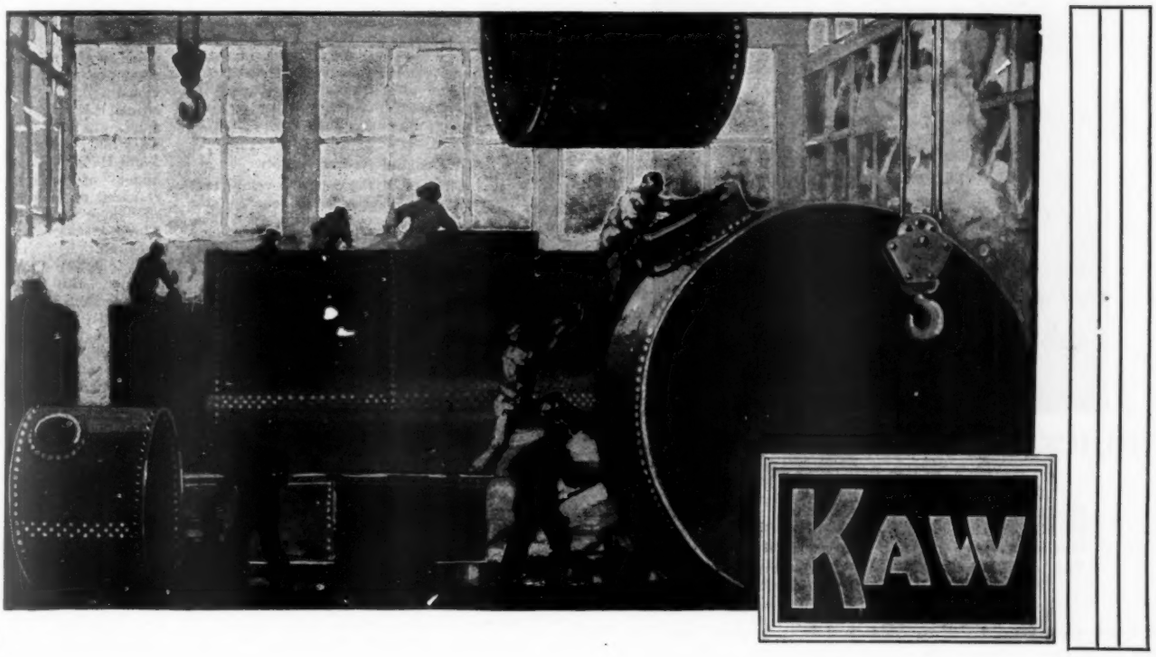
The Misko Refineries, Inc., has started operating its recently completed refinery located at Mirando City, Tex. The plant, which has a capacity of 1,500 bbls., manufactures zero test lubricating oil, gas and fuel oils. Terminal facilities are located at Port Aransas. The Misko Refineries, Inc., is associated with the Mirando Oil Co., Schott Oil Co., Killam-Condren Oil Co., Miami-Laredo Oil Co., Nueva Oil Co., and is under the same management as the Texpata Pipe Line Co., which handles production from the developed fields in Webb and Zapata Counties. O. W. Killam is president of the company; Colon Schott, vice president; S. B. Coblentz, secretary, and W. T. Killam, treasurer. With Jacob Klee, the above named officials constitute the board of directors.

EASTLAND GASOLINE PLANT

WICHITA FALLS, Texas, Sept. 30. The big casinghead gasoline plant of the Gulf Production Co., located on the Kinnebrew tract about 2 miles west of the city of Eastland in Eastland County is now in operation. The new plant represents an outlay of over $1,000,000 and has a daily capacity of 10,000 gallons. The plant, which will extract about 10,000,000 feet of gas daily, will receive its source of supply from the company's wells, numbering nine gassers on the Kinnebrew & Caudle tracts in the vicinity of the plant.

LAREDO OIL LAND SUIT

AUSTIN, Tex., Oct. 8.—Suit for recovery of 681 acres excess survey land near the Laredo oil field of Webb County, was filed by the Attorney General's department in Travis County District Court, against Eusebio Garcia, a large number of other individuals and the following oil companies: Laurel Oil Co., Rydal Oil Co., Courson-Matthews Oil Syndicate; Magnolia Petroleum Co., an unincorporated joint stock concern and the Canada-Texas Oil Co.



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INCREASE IN TOTAL OIL STOCKS MUCH LESS

(Continued from Page 110)

to the 4,247,000-bbl. increase of July over June. This increase in production was a monthly development for several months up to August. On the side of consumption there was a 7,807,727-bbl. increase. Although consumption has shown consistent increases all year, the August increase was exceptional. July's increase in consumption over June was 4,200,723 bbls.

Demand Nearer Supply

As a result of these two developments in regard to supply and demand, the curves of total consumption and production and imports as shown by the graphs were brought closer together. This is an encouraging development for those who for months have been hoping for a change from the constantly increasing spread between the curves of supply and demand, which in turn was reflected in enlarged stocks which became excessive early in the year.

The writer attempts no optimistic prediction due to this favorable development in August. If the usual cycle is carried out in future months the spread between the production and consumption curves will gradually be narrowed until they cross and we have a situation in which demand exceeds supply and the stocks of the nation are lowered. This development, it is conceded, is necessary to bring permanent strength to crude and refined markets.

It is doubtful, however, if the margin between consumption and production continues to narrow due to the fact that the industry is now entering a period of minimum consumption. The Government reports for September on crude production are not available, but equally reliable data show that there was little change over August. If consumption would continue to show a consistent monthly increase with production unchanged or decreasing it is apparent that conditions would soon right themselves. But, as previously stated, August ended the period of maximum consumption and although consumption for the fall and winter will, no doubt, show an increase over the same period last year, it is equally as certain that there will be a substantial slump from the summer consumption.

Production Not Increasing

Due to this situation it is improbable that there will be a situation in regard to supply and demand which will bring about decreased stocks in the near future. The only possible development which could change this situation would be a slump in production and, although authorities disagree as to this possibility, it can be said that up to this writing it has failed to develop to any great extent.

This situation only serves to indicate the seriousness of the situation this summer when crude stocks mounted daily, when to assure a healthy market situation they should have shown a seasonable decline. The fact that production is not increasing, however, is important and probably represents the most important development of an encouraging nature during August in the vital statistics of the industry.

It will be noted that runs to stills decreased 231,559 barrels during August and refinery stocks were lowered 622,959 barrels. These reductions are probably due to the unfavorable market conditions which have made it impossible for a majority of refiners to operate at a profit in spite of the comparatively low crude prices. Many refiners, as is customary, reduced their stocks in preparations for the lessened demand of the fall and winter and at the same time reduced their still runs. This action is important in that it lessens the amount of refined products available with a corresponding increase in the pipe line stocks.

Refined Market

The changes in regard to the vital statistics of the refinery markets during August were not so important. Some have laid great stress on the situation in regard to the production and consumption of gasoline which brought a 111,533,119-gallon decrease in stocks. It is agreed that this is a substantial decrease and if it had come four or six months ago it would have been cause for considerable optimism regarding the future trend of the prices for that product. But as has been pointed in these columns previously, a study of conditions affecting refined markets, especially gasoline, must take into consideration the season. Gasoline stocks the last of April totaled 1,336,417,871 gallons, the highest in the history of the industry. The stocks represented an increase of 50 per cent over the same period of the previous year. These stocks, due to the heavy summer consumption, had been decreased to 1,053,856,221 gallons the latter part of August. But they were still 50 per cent greater than the same period the previous year. In brief, the reduced stocks have not brought an improved situation when the time of the year is taken into consideration.

It will be noted from the curve of the graph covering gasoline consumption that consumption in September of 1921 and 1922 decreased from August. This is a seasonable development. It is reasonable to assume that the September reports of the Bureau of Mines will show the same development for September of this year. The only possible means, therefore, of maintaining the needed relationship between gasoline supply and demand is to reduce production more than the seasonable decline in consumption. Otherwise the industry will be called on to provide more and more storage during the fall and winter months. It has already been pointed that the industry unquestionably will be called on to finance large increases in its crude stocks. In view of this situation it is probable that every effort will be made to prevent a rapid increase in gasoline stocks which are already heavy enough for the spring months.

The importance of this situation in regard to markets is obvious. According to leading market observers it practically assures that as long as present conditions obtain in regard to gasoline consumption and production, strengthening of the gasoline market from its present low level is improbable.

Kerosene Shows Improvement

The only refined product whose statistical position improved during August was kerosene. Its production increased 1,965,333 gallons during August over July, but for the same period its consumption increased 29,035,803 gallons, resulting in a 25,842,291-gallon decrease in stocks. The stocks are now lowest in the recent history of the industry. This augurs well for products' future market. Market observers, however, point out that any substantial advance in prices is not to be expected. The production of this product can be increased easily through a shift in refinery operations and in view of the low gasoline prices this is a probable development, should prices advance.

Both fuel oil consumption and production decreased during August, the former more than the latter, so that stocks increased 62,393,419 barrels. The statistical position of this product has not improved during the past three months. There can be no complaint as to the fuel oil consumption and the outlook for improvement over the fall and winter months continues favorable. However, the danger of a famine and high prices has apparently passed. The heavy production of California crude assures a supply at least adequate enough to prevent a run-away market and based on conditions as reflected by the lower crude prices is toward lower, rather than higher prices.

The most important price change during September was the reduction of Mid-Continent crude by the Prairie Oil & Gas Co. and other major purchasing companies. The price on 35° to 36.9° gravity, on which the crude curve of the accompanying graph is based, was reduced to $1.30 cents.

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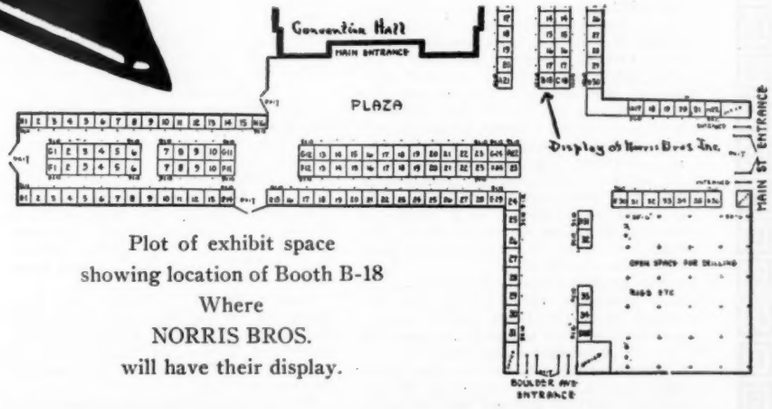

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N. LOUISIANA-ARKANSAS

(Continued From Page 40)

Oil Co. set 6-inch casing at 1,875 feet in No. 1 Griffin, Section 33-15-15.

Just south of their first producer, Burch Walker is waiting on standard rig to pump second well on the LaGrone lease at 2,290 feet, Section 25-15-17. In the same section the Johnston Drilling Co. is down 1,400 feet in No. 1 Wells and White and associates tested show of oil and gas at 2,003 feet and are drilling No. 1 Wells deeper, now down 2,140 feet.

In the same section, but north of the Pioneer States Oil Co.'s two producers, Section 24-15-17, Clark, trustee, is rigging up No. 2 Berry. Hunt and others tested No. 1 Keller at 2,273 feet with an estimated flow of 75 bbls. and are arranging to drill deeper.

The Gulf Refining Co. is reaming No. C-1 Dawson to bottom from 2,000 feet, Section 10-15-18, several miles west of production.

Hall and associates are drilling at 2,285 feet in No. 1 Goodgame, Section 19-11-16, a number of miles north of production in wildcat territory.

In the heavy oil producing area the Standard Oil Co. set 10-inch casing at 185 feet in No. 2 Hardy, Section 4-16-15, and The Texas Co. is waiting standard rig at 2,000 feet for No. 1 Johnson, Section 3-16-15.

Woods and associates are drilling at 2,700 feet in their test on the Garnett lease several miles north and west of production in Section 2-12-18.

A summary of Ouachita County operations last week, including the Stephens district, showed 4 wells waiting for standard rig; 6 temporarily abandoned; drilling; 10 rigged up; 17 derricks and 2 locations.

Stephens Field

One well was put on the beam last week in the Ouachita district, the Arkansas Invincible Oil Corp.'s No. A-1 Wesley, Section 7-15-19, pumping 30 bbls. at 2,185 feet.

The same company set 10-inch at 110 feet in No. 2 Wesley, Section 15-19-11 and set 6-inch casing at 2,055 feet in No. 1 L. Jones, Section 30-15-19. Hopkins, trustee, has shut down No. 1 Allen, waiting fuel at 1,975 feet, Section 33-14-9. Leeper, trustee, is bailing to test No. 1 Hamilton at 2,140 feet, Section 23-15-19.

The Ohio Oil Co. tested salt water with a small show of oil and gas at 1,428 feet in No. 1 Grayson and is now trying to cut off the salt water, Section 28-15-19. The Standard Oil Co. set 10-inch casing and drilled to 1,300 feet in No. 1 L. Jones, Section 30-15-19.

Columbia County Area

The Gulf Refining Co. put No. 2 J. A. Hammond on the beam, Section 25-15-20, pumping 30 bbls. at 2,110 feet.

The Atlantic Oil Producing Co. junked the hole of No. 3 Milner at 1,578 feet and is now rigging up for a new hole, Section 24-15-20.

E. T. Brown and others are drilling at 2,610 feet in No. 1 Robinson, Section 23-18-23, 13 miles southwest of Magnolia. De Soto & Hickman are drilling at 690 feet in No. 1 Fullenweider, Section 3-16-21. Dowby and others are down 2,160 feet in No. 1 Ray & Fullenweider, Section 12-17-22. Haskell and others rigging up Nos. 7 and 8 Webfer, Section 24-15-20. Hude & Aarens are down 1,025 feet in No. 4 Adkins, Section 13-15-20. The Magnolia Petroleum Co. set 6⅝-inch casing at 2,065 feet in No. 3 Webfer, Section 26-15-20. The Ohio Oil Co. is drilling at 2,745 feet in No. 1 J. W. Witt, Section 35-16-21. The Pure Oil Co. has rig up for No. 1 Buffington, Section 24-15-20.

The Shaffer Oil & Refining Co. set 6-inch casing at 1,995 feet in No. E-4 Milner, Section 24-15-20. Turley & Tate are down 960 feet in No. 3, same section.

Nevada County Area

Ames and associates are waiting standard rig at 1,175 feet for No. 1 Waters, Section 10-14-21 and set 10-inch casing at 60 feet in No. 2. Day, trustee, has shut down No. 1 Westmoreland at 1,900 feet, Section 10-21-12.

Millie Dee, trustee, is drilling at 2,510 feet in No. 1 Stone, Section 33-13-20. The Prescott Oil Co. is drilling at 560 feet in No. 1 Henry, Section 10-12-10. Smitherman & McDonald are down 870 feet in No. 2 Water, Section 10-14-21. The Transcontinental Oil Co. is moving in rig for No. 1 Blakely, Section 14-13-20.

Bellevue Field

Bossier Parish: Three producing wells were completed in this field last week. Olmstead and associates brought in No. A-10 Strange, Section 23-19-11, flowing 250 bbls. of fluid, 75 per cent salt water, at 297 feet.

Roy and others completed No. 7 Scanland Section 15-19-11, flowing 150 bbls. at 380 feet and the Standard Oil Co. completed No. 6 Weaver, Section 14-19-11, flowing 30 bbls. at 390 feet.

The Humble Oil & Refining Co. tested salt water at 400 feet in No. 18 Roy, Bliss & Weatherbee, and has temporarily abandoned the test, Section 15-19-11. It is down 310 feet in No. 16, same section.

The Louisiana Oil Refining Corp. is waiting on standard rig to pump No. D-25 fee, at 375 feet, Section 15-19-11. Peps and others' No. 1 Catlet stands full of salt water with a little oil at 300 feet, Section 27-19-11.

The Standard Oil Co. is down 275 feet in No. 6 Bliss & Weatherbee, Section 10-19-11. Webb and others set 6-inch casing at 285 feet in No. 1 Catlet, Section 27-19-11. Wellburn and Deputy are drilling at 60 feet in a well on the McVay lease, Section 9-19-11.

Caddo Parish

W. D. Chew completed No. 2 fee, Section 32-21-16, flowing 1,000 bbls. of salt water and 40 bbls. of oil at 1,905 feet.

The Fortuna Oil Co. is drilling at 1,085 feet in No. 19 Robertshaw, Section 23-21-15 in the Pine Island district.

The Humble Oil & Refining Co. set 12½-inch casing at 175 feet in No. 1 Youree Randolph, Section 24-20-15. The Louisiana Texas Community Oil Co. tested No. 1 French dry with no show at 2,739 feet and is now drilling at 2,820 feet, Section 34-23-16.

Claiborne Parish

The Ohio Oil Co. tested salt water, pulled and abandoned No. 16 Sherman, at 2,850 feet, Section 9-23-8.

The El Dorado Chief Oil Co. is drilling at 3,355 feet in No. 1 McKenzie, Section 35-22-7, 4 miles north of Homer. The Louisiana Oil Refining Corp is down 2,065 feet in No. 3 J. L. Garrett, Section 24-23-8. The Ohio Oil Co. set 6-inch casing at 2,735 feet in No. 1 Teague, Section 9-23-8.

The Standard Oil Co. is drilling at 2,000 feet in No. 3 Shaw Palmer, Section 30-21-7. The Triangle Drilling Co. is down 1,905 feet in No. 1 Reinach, Section 17-22-5.

De Soto Parish

Phillips and Garrett are down 2,823 feet in No. 1 Roscoe, Section 35-13-14. Pollock and associates are drilling at 2,135 feet in No. 1 Jenkins, Section 25-13-13. Shell and Kennebrew are drilling at 2,200 feet in No. 1 Tompkies, Section 301-4-13.

The T. P. Coal and Oil Co. is down 900 feet in No. 1 Roscoe, Section 22-12-13. A. H. Tarver is waiting standard rig for No. 1 Gilbert, Section 32-12-11.

Red River Parish

Caldwell and associates set 12½-inch casing at 150 feet in No. 1 Welch, Section 7-14-10. The Fortuna Oil Co. is drilling at 2,230 feet in No. 58 Pugh, Section 7-12-10.

Louisiana Wildcats

Bienville Parish: The Ohio Oil Co. is drilling at 2,595 feet in No. 1 Randell, Section 12-18-7. The Standard Oil Co. is down 1,785 feet in No. 1 Leena Scott, Section 21-17-8.

Bossier Parish: Perkins and associates are waiting 6-inch casing at 2,550 feet in No. 2 Vance, Section 18-19-13. Sales and Walker set 12½-inch casing and drilled to 650 feet in No. 3 Bolinger, Section 30-23-12.

The Triangle Drilling Co. is down 2,850 feet in No. 1 Bolinger, Section 18-22-11. Zinc and others are down 250 feet in No. 1 McGuffin, Section 4-18-11.

La Salle Parish: The Urania Petroleum Co., is drilling at 220 feet in No. 1 Urania, Section 20-10-2e.

Morehouse Parish: The Consolidated Oil Co. is drilling at 1,760 feet in No. 1 Oden, Section 28-20-5e. Feazel and others set 12½-inch casing at 250 feet in No. 2 Plemmons, Section 22-20-5e. Haynes and others are bailing to test No. 12 Dixie Lumber Co., at 2,580 feet, Section 54-17-3e.

Ladell and others are drilling three wells on fee leases. Morris, trustee, is down 1,500 feet in No. 1 Snyder, Section 34-20-5e and has rig up for No. 1 Plemmons, Section 20-20-5e. The Southern Carbon Co. is down 1,050 feet on No. 10 Spyker, Section 29-21-5e.

Ouachita Parish

Two gassers were completed in Ouachita Parish last week. The Southern Carbon Co.'s No. 23 fee, Section 21-19-5e, with an initial production of 9,000,000 cubic feet of gas at 2,205 feet and the Texas Louisiana Production Oil Co.'s No. 2 fee, Section 4-19-5e, making 12,000,000 cubic feet of gas at 2,2[illegible] feet.

Boone, trustee, is down 1,200 feet in No. 1 Lieber, Section 4-18-5e. The Consolidated Carbon Co. set 8-inch casing at 910 feet in No. 1 Wilson, Section 19-19-5e. The Fortuna Oil Co. set 8-inch casing at 955 feet in No. 1 Cole, Section 35-20-4e.

Hosterman and others are drilling at 2,195 feet in No. 1 Stubbs, Section 19-19-5e. The Maury Drilling Co. is down 2,180 feet in No. 1 McEwen, Section 19-19-4e. The Ouachita Natural Gas Co. is reaming to bottom from 845 feet in No. 2 Lieber, Section 28-19-5e.

The Southern Carbon Co. set 6-inch casing at 2,075 feet in No. 5 Fairbank, Section 43-20-5e. The Texas Co. is rigging up No. 1 Wienchit, Section 31-19-5e. The Tidal Oil Co. set 6-inch casing at 2,090 feet in No. 1 Farner, Section 4-12-5e. The Standard Carbon Co. is drilling at 1,850 feet in No. 1 Pucket, Section 15-19-5e. The United Oil & Gas Producing Co. is drilling at 1,625 feet in No. 2 Palkum, Section 3-19-5e. Zeigler and others is reaming to bottom from 2,165 feet in No. 3 Muench, Section 28-19-5e.

Sabine Parish: The Louisiana Creosote Oil Co. has abandoned No. 1 Walker at 3,007 feet, Section 7-5-12. Brown and associates set 10-inch casing and drilled to 730 feet in No. 7 Bowman Hicks Lumber Co., Section 16-7-12.

Union Parish: Collins and Woodley are moving in rig for No. 1 Newsom, Section 23-23-1e. The Union Parish Drilling Co. is down 2,150 feet in No. 3 Clark, Section 17-23-1e.

Webster Parish: The Fortuna Oil Co. set 6-inch casing at 2,440 feet in No. 1 S. J. Merritt, Section 14-21-10. The Gulf Field Gas Co. is down 1,400 feet in No. 1 Maynorm, Section 27-23-10, and set 10-inch casing at 180 feet in No. 1 J. Merritt, Section 14-21-10. The Texas Co. is drilling at 3,050 feet in No. 1 M. Merritt, Section 5-22-10.

Arkansas Wildcats

Calhoun County: Harris and Bickley are drilling at 425 feet in No. 1 Freeman Smith Lumber Co., Section 26-16-[illegible].

Drew County: Graves and others are drilling at 1,200 feet in No. 1 Kurn, Section 10-13-6.

Grant County: McKenzie and Hinkle junked the first hole of No. 1 Prague at 1,350 feet and set 10-inch casing and drilled to 295 feet in their second hole, Section 26-5-12.

Jefferson County: Fuller-Drain is down 2,380 feet in No. 1 Trimble, Section 31-5-8, near Pine Bluff.

LaFayette County: The Kensaw Petroleum Co. is drilling 6-inch plug at 2,[illegible] feet in No. 1 Red River Land Co., Section 34-19-24, directly north of the Lisbon-Harris well.

Little River County: Gaines and others are down 1,510 feet in No. 1 Goodwin Timber Co., Section 15-13-[illegible]. Johnson and others are drilling at [illegible] feet in No. 1 Hawkins, Section 10-11-[illegible]. The Red River Valley Oil Co. is down 2,790 feet in No. 1 Toland Taylor, Section 29-13-20.

Refinery Statistics for Month of August, 1923

(Unit of Gallons)

Compiled by W. C. Hill, Petroleum Economist

A continued decrease in the number of operating refineries is noted in August, the number reporting to the Bureau of Mines for that month being 260 and their aggregate daily indicated crude oil capacity decreased to 2,055,532 barrels. These plants were operating during August at 78.4 per cent of their capacity, running to stills a daily average of 1,613,398 barrels of crude oil.

Gasoline—The output of gasoline in August was 648,954,706 gallons, a daily average of 20,934,023 gallons. Stocks on hand August 31, were 1,053,856,221 gallons, which is a decrease of 111,533,119 gallons under the stocks at the end of July. The domestic consumption during August was 692,185,610 gallons, an increase of 18,166,143 gallons over the July consumption. Stocks on hand at refineries on August 31, constituted 47 days supply at the August rate of consumption. This compares with 54 days' supply on August 1 of this year and 37 days' supply on August 31, a year ago.

Kerosene—Kerosene production during August was 186,218,819 gallons, or a daily average of 6,007,059 gallons. This is a decrease of 2,007,432 gallons over July production. Stocks were decreased 25,842,291 gallons.

Gas and Fuel Oils—The August production of gas and fuel oils was 1,010,657,879 gallons, a decrease of 42,584,628 gallons over July output. Stocks were 1,462,182,129 gallons, this being an increase of 61,368,339 gallons.

Lubricants—Lubricants produced during August amounted to 87,261,902 gallons, or a daily average of 2,814,900 gallons. This was a decrease from the July production of 6,698,972 gallons. Stocks declined to 220,419,457 gallons.

Gasoline—	Aug., 1923	July, 1923	Aug., 1922
Stocks first of month	1,165,389,340	1,263,583,128	772,908,949
Production	648,954,706	636,912,059	549,968,376
*Imports	10,201,260	22,634,719	2,829,062
*Exports	78,503,475	83,721 099	38,279,145
Indicated consumption	692,185,610	674,019,467	583,687,952
Stocks end of month	1,053,856,221	1,165,389,340	703,738,310
Kerosene—			
Stocks first of month	269,459,847	264,301,002	324,586,128
Production	186,218,819	188,226,251	184,382,897
*Imports	53,159	11,060	†
*Exports	80,226,306	59,821 009	87,316,297
Indicated consumption	131,887,963	123,257,457	136,132,597
Stocks end of month	243,617,556	269,459,847	285,520,131
Gas and Fuel Oil—			
Stocks first of month	1,400,813,790	1,324 625,107	1,358,870,284
Production	1,010,657,879	1,053,242,507	944,289,105
*Imports	11,030,099	46,259,234	†
*‡Exports	127,414,605	120,942 731	59,530,469
Indicated consumption	832,905,034	901,770,327	877,017,309
Stocks end of month	1,462,182,129	1,400,813,790	1,366,611,611
Lubricants—			
Stocks first of month	224,951 955	225,137,230	226,690,749
Production	87,261,902	93,960,874	88,824,133
*Imports	6,355	486,922	†
*Exports	22,530,546	23,603,187	27,244,801
Indicated consumption	69,269,209	71,029,884	67 601,583
Stocks end of month	220,419,457	224,951,955	220,668,498

*From Bureau of Foreign and Domestic Commerce. Exports include shipments to noncontiguous territories. †Figures not compiled prior to October, 1923. ‡Does not include fuel or bunker oil laden on vessels engaged in foreign trade.

OUTPUT OF REFINERIES IN THE UNITED STATES DURING AUGUST, 1923

	East Coast (N. Y., Phila. and Balto)	Pennsylvania N. Y., E. Ohio and W. Va.	Ind. and Ill., W. Ohio, Ky. and Tenn.	Oklahoma and Kansas	Texas	Louisiana and Arkansas	Colorado and Wyoming	California	Total	Daily Average 1923	Daily Average 1922
Oils run to stills, bbls.:											
Domestic crude	8,955,421	1,843,227	4,387,687	4,943,516	7 236,700	3,205,831	2,447,026	13,505,221	46 524,629	1,500,794	*.....
Foreign crude	1,776,417	.....	.....	.....	878,669	835,632	.....	.....	3,490,718	112,604	*.....
Total crude oils	10,731,838	1,843,227	4,387,687	4,943,516	8,115,369	4,041,463	2,447,026	13,505,221	50 015,347	1,613,398	1,413,451
†Domestic partly refined	74,317	43,341	133,825	309,461	323,054	.....	551,782	.....	1,128,302	36,397	*.....
Foreign partly refined	675,472	.....	.....	.....	48,985	52,028	.....	.....	776,485	25,048	*.....
Casinghead gasoline	30,676	10,171	24,024	97,764	83,468	26,006	47,887	90 828	411,024	13,259	*.....
†Total other oils	780,465	53,512	157,849	407,425	455,507	78,034	599,059	90,828	2,315,811	74,704	157,529
†Total oils run	11,512,303	1,896 739	4,545,536	5,350,941	8,570,876	4,119,497	3,046,095	13,596,049	52,331 158	1,698,001	1,570,980
Output of refineries:											
Gasoline, gallons	134,454,750	27 862,346	89,068,241	93,206,475	101,678,990	39,921,366	53,656,619	109,165,919	648,954,706	20,934,023	17 740,593
Kerosene, gallons	50,632,173	12,362,471	17,968 607	20,050,012	33,331 385	21,863,301	13,611,098	16,399,772	186,218 819	6,007,059	5,947,835
Gas and fuel oils, gallons	216,468,071	17,267,890	67,318,144	92,513,556	175,887,772	74,020.262	52,505,730	323,676,544	1,010,657,879	32,601,867	30 460,939
Lubricants, gallons	25,918,628	14 319,476	8,747,123	5,058.317	21,764,923	2,463,169	1,917,454	7,072,812	87,261,902	2,814,900	2 866,295
Wax, pounds	15,017,036	5,280,790	2,978,827	2,275,512	4,920 746	3,553,871	3,602,634	.....	37,629,416	1,213 852	1,220,683
Coke, tons	15.049	1,591	17,051	1,819	7,634	5,464	5,808	.....	54,506	1,758	1.671
Asphalt, tons	103 941	306	12.847	.....	34,272	31,031	1,904	46,595	230,896	7 448	7,180
Other finished products, gals.	6,330,230	1,154,763	3,213.923	2,751.215	798	3,412,463	55,769	5,546,765	22,465.866	724,705	*.....
Losses, barrels	482,460	129,986	157,054	245,183	386,936	93,866	83,556	219,598	1,798,639	58 021	56,423
‡Domestic partly refined products, gallons	.....	.....	.....	.....	.....	18,586,554	.....	89,079,684	.....	.....	*.....

*Not available prior to 1923. †Net runs to stills. ‡Net production.

STOCKS AT REFINERIES IN THE UNITED STATES AUGUST 31, 1923

	East Coast (N. Y., Phila. and Balto.)	Pennsylvania, N. Y., E. Ohio and W. Va.	Ind. and Ill., W. Ohio, Ky. and Tenn.	Oklahoma and Kansas	Texas	Louisiana and Arkansas	Colorado and Wyoming	California	1923	1922
Crude oil and partly refined products, bbls.:										
Domestic crude, bbls.	5,950 137	1,211,154	1,108,693	4 682,909	5,727 538	4,959,526	1,458,944	3,799,500	28,898,401	*.....
Foreign crude, bbls.	2.981,652	.....	.....	.....	926,771	1,464,039	.....	.....	5,372,462	*.....
Total crude oils, bbls.	8,931,789	1,211,154	1,108,693	4.682,909	6,654 309	6,423,565	1,458,944	3,799,500	34,270,863	34,029 919
Domestic partly refined, bbls.	4,956,235	808,591	2,229 437	1,871,834	5,742,547	2,375,324	2,073,600	10 307,579	30,365,747	*.....
Foreign partly refined, bbls	348,587	.....	.....	.....	.....	.....	.....	.....	348,587	*.....
Total other oils, bbls.	5,305.422	808,591	2,229,437	1 871,834	5,742.547	2.375.324	2,073,600	10,307.579	30.714 334	974,047
Total oils to be run, bbls.	14,237,211	2,019.745	3,290.421	6,554,743	12,396,856	8,795,889	3,532,544	14,107,079	64 937,488	35.003,966
Finished products:										
Gasoline, gallons	210,484,461	21,078 675	132,307,602	201,983,469	124,133.099	90,129.850	120,133,961	153,606.104	1,053 856,221	703,738.310
Kerosene, gallons	70,667,100	12,891,741	44,356 421	19,699,287	46,663,471	20,094,884	5,968.648	23,275,804	243 617,556	285.520,131
Gas and fuel oils, gallons	324,615,285	32,796,355	42,240 869	105,541,655	346,718,801	80,577 257	40,521,503	489,170.434	1,462 182,129	1,366,611,611
Lubricants, gallons	91,375.878	31,148 567	19,621,903	9.795,918	47,166,764	3,742,317	4,981,431	13,186,679	220 419,457	220,668,498
Wax, pounds	52,352,447	15,854 314	27,619,996	3,205,487	11,865,559	59,100,421	4,856,394	166,424	175,021,042	219 721,841
Coke, tons	5,912	297	1.756	1,933	7.213	262	3,131	.....	20,504	44,405
Asphalt, tons	68.364	2,158	9 575	788	24,418	10,571	975	11,785	128.034	142 067
All other finished products, gallons	5,882,633	964,595	16,023,694	6,609,979	58,687	812,311	345,926	345,401	31,043,226	*.....

*Data not available prior to 1923.

EXPO. EXHIBITORS MOST ENTHUSIASTIC

(Continued from Page 29)

chinery Co., of St. Louis, agents for lathes, pipe machines, power hammers, punches, shears and drill presses. The machines were put in operation for the crowd and formed one of the most popular exhibits on "the row." Long slivers of iron curved fantastically for the amusement of the ladies. Old oil men saw other features. Among the men at this booth were Arlington Nuetzel, Mr McKee, E. H. Sline and R. Nazel, president of the Nazel Hammer Co.

D. W. McKay was in charge of the Hope Engineering & Supply Co.'s booth, distributors for Reeves engines and Hildebrandt heat exchangers. An anticorrosive material called biturine solution and enamel, was expounded by E. A. Guenther, of San Francisco. Biturine is made by Hill, Hubbell & Co. and forms dressing for pipe lines.

One of the large corporations to exhibit was the United Lead Co., of New York, under the leadership of Dr. Otto Mantius. The Simonson-Mantius vacuum process is used.

A rubber mallet, used by ladies, motion picture actors and garage employes was one of the chief attractions at the Goodyear Tire & Rubber Co.'s booth, presided over by W. J. Brunk. He confessed to carrying the mallet along for protection from the wild "hunkie" and "boll weevils" operating the rotary drills across the way. He showed a large line of pumping and drilling belts, hose and other rubber goods.

O. F. Kluenter waxed eloquent in his praise of the American Schaeffer & Budenberg Co.'s products—gauges, recording thermometers, heat recorders, temperature controls, safety valves and steam traps. The Simplex jacks for oil field use, exhibited in the next booth, looked like they might be fine things to carry along on a truck.

Lead wool instead of a solid lead plug was being advocated by F. W. C. (Bill) Bailey, representing the Eagle Picher Lead Co., of Joplin. Bill up and told us how he could also satisfy the oil men in their demand for good babbit metal and other lead products.

Everybody knows Swan underreamers. W. C. Meeks and J. A. Becker at the Bridgeport Machine Co.'s booth also advised oil men that their company carried a full line of drilling and fishing tools and other specialties.

Grease Men on Deck

Pity the poor grease man. Nothing to do all day but puddle around in the stuff, mixing, testing and explaining. But J. H. Elgin, of the Keystone Lubricating Co., proved to be a "lubricating" talker and his flow of language ran easily and effectively, showing close association for many years with the stuff he sells. He had all kinds of greases, from liquid to stuff that would do justice as a substitute for the well-known paving brick. Great stuff this grease, comes from old crude oil, too.

The Guiberson Corp. was represented by "Dick" Guiberson, Fred Izzard and R. E. Harris. They had lots of good things, chief among which was the swab, packer and tubing catcher.

J. R. McCoy, of Bristow, showed the features of the Standard underreamer, made by the Standard Machine & Tool Co. The Reed Roller Bit Co., nearby, had some of their largest samples on the floor for the inspection of drillers.

Something new in service station and truck meters was being shown by Lynn A. Schloss and Elmer H. Jones, for the Granberg Meter Co., and the Associated Supply Co., distributors. Nifty is the word to use in describing them.

Another old friend was found in the Pyle-National turbo-generator, with thousands in use in the oil fields. C. T. Tewkesbury, R. L. Kilker and A. E. Johnson were chief greeters here.

F. W. Freeborn held down the official position in the F. W. Freeborn Engineering Corp. booth, specialists in oil field valuation and appraisal work. Mount-Cooper Boiler & Iron Co. representatives met visitors across the aisle from the orange juice stand.

The Jarecki Manufacturing Co. under guidance of J. W. Wells, showed the large line of Jarecki fittings, in addition to the Spit Fire spark plug. The spark plub exhibited here had little resemblence to Barney Google's mount. This one ran.

R. E. Alexander and C. E. Blair were showing off the Max jack frame for pumping wells. It looked mighty good.

The Joseph R. Ryerson & Son, Inc., exhibit contained some good examples of oil field machinery. The company makes anything in iron working tools and everything in iron and steel, according to L. H. Taylor and M. T. Powers, representatives. It also manufactures its own tool steel, called "Ryolite." F. J. Clark, machinery representative, and W. T. (Bill) Branson, district manager, were also present.

Among the heavy machine exhibitors was the Lehmann Machine Co., headed by Paul Lehmann. They were kept busy with their big lathe. It was a wonder.

The International motor trucks and tractors showed their adaptability to the oil fields in utilizing oil field winches.

Notebooks as Souvenirs

V. D. Tilden gave out notebooks at the Williamsport Wire Rope booth. L. H. Frantz showed the Lubrikup valve cups and W. H. Portong, factory representative, sold Petrol belting.

The Burns temper screws took the eye of practical men. F. G. Irvine, of the Burns Tool Co., told about it.

The G. M. C. trucks attracted visitors to the General Motors booth, and shooting apparatus looked harmless as displayed by the Eastern Torpedo Co.

Surrounded by painted Osages on one side and painted ladies on the other, the drilling well using Westinghouse

(Continued on Page 123)

Need State Law to Protect Oil in Ground

Declares E. W. Marland in Striking Address Delivered Before the International Petroleum Congress at Tulsa.

By E. W. Marland

THOUGHTS FROM MR. MARLAND'S ADDRESS

The producing branch has furnished the public with oil during the past 50 years at something like two and a half billion dollars less than cost.

The new wells drilled in the first half of this year have cost more than all of the oil sold at all the wells in the United States.

California's gusher fields have not returned to the operators more than half the entire cost to them and will probably never pay out their full cost.

We must face the possibility of State control of production, though the Federal Government has no such police power. The State, land owners and lease owners will favor it to protect their interests from wasteful exploitation.

We need such law to protect the oil under ground from those operators who seek it by drilling on adjacent lands.

This Petroleum Congress should possibly appoint a committee of lawyers and practical oil men to prepare a plan for legislation.

Intelligent and uniform proration will prevent overproduction.

We must admit almost criminal waste. We must admit that price cutting is killing off the small independent refiner, and the small independent producer. We must admit it has happened many times before.

We must admit that when this price war is over, many of the strong corporations will be stronger though having fed off the weak ones; and the public will probably pay heavily for the joy ride it has been taking on gasoline below cost.

But we feel that so far as the producer is concerned, there was no guilty intent of committing this "almost criminal waste." His guilt consisted in believing too implicitly a shortage of crude was impending and that the consuming public would be in serious distress as a consequence.

He enthusiastically set out to prevent such a shortage. His part of the crime was that he did his job too thoroughly. Instead of a shortage, he gave the public an over supply. He has been doing this sort of thing ever since the beginning of the industry.

Time after time, the leaders of the industry have said to the producer, "a shortage threatens" and have moved up the price of oil, and the producer has gone out and brought in new fields, and the price has been moved down, and he has lost money.

Product Below Cost

On the whole, the producing branch has furnished the public with oil during the past 50 years at something like two and one-half billion dollars less than cost.

Last year—1922—I estimate the producing branch furnished to the refining branch its crude petroleum at approximately five hundred million dollars less than it cost. The same will be true this year.

In 1922, the producers paid out more money for drilling new wells than they received from the sale of all the oil from all the new wells and all the old wells. They are out all the money it cost, except drilling costs to produce the oil produced last year.

I believe the new wells drilled in the first half of this year have cost more than all of the oil sold at all the wells in the United States.

We have heard a great deal of the three gusher fields in California. Those fields, to date, have not returned to the operators more than one-half the entire cost to them and will probably never pay out their full cost.

The Burbank Field has sold its oil for approximately $84,000,000, and on account of bonuses, drilling and lifting costs, and royalties alone, has cost over 110,000,000 to date.

With other corporate and individual expenses and tankage, and pipe lines, it has cost not less than $140,000,000 and is approximately $70,000,000 in the red on the industry's books.

If the present price of oil continues long, the Burbank Field will never pay out. The Burbank Field is probably the most conservatively drilled and operated field in the history of Oklahoma.

Control and Regulations

The subject of Governmental control and regulation of the producing branch has been very much discussed in the industry during the last two or three months and will undoubtedly be a live subject before Congress next winter. I do not believe the Federal Government can control the production of oil under our constitution. Oil and gas are held to be the property of the owner of the surface. If and when the owner of such surface succeeds in bringing such oil or gas to the surface of his land and reducing such oil or gas to his possession.

Oil and gas have the natural faculty of escaping by holes drilled whether these be drilled on the land above its original location or on the land of an adjacent owner. Coming to the surface, it becomes the property of the owner of the land on which it is produced and of the man who reduces it to possession.

The human law regarding property rights, and nature's law governing migration of oil and gas are the governing causes of our method of operation for oil and gas.

Every owner must, in order to perfect his ownership, drill and reduce it to possession before it runs or flows away into and under his neighbors' land and up through his neighbors' wells.

State's Police Power

The only limitation of this right to ownership that the courts have placed upon the owner of the surface is this: Certain States have passed statutes preventing the owner from drilling and permitting the gas to escape on the theory that there is a common property right in oil and gas when in place.

This distinction is based upon the fact that the owner of the surface is not the absolute owner of the oil and gas that may be under a given tract of land, but owns only right to capture and possess it, and that gas and oil do not become the property of the land owner or his lessee until it is captured and held by him.

The power to supervise and regulate by State Government oil and gas production, is based solely upon this peculiar property right of the land owner and his lessee, to which is applicable the police power of each sovereign State. The Federal Government has no similar police or regulatory power. Much discussion has been indulged in during the summer regarding the necessity of Federal control of the production of oil. Many of the leaders in the industry have believed such control necessary, if not desirable. I can find nothing in our Federal Constitution to permit such control.

However, I have considerable fear we must face the possibility of State control of production. The land owners of the State of Oklahoma, and other States, will probably not long continue to permit such foolish waste of their property by their lessees as has been seen this year. The land owners of the State, voters of the State and the legislators know that the period of flush production and high rate of income soon passes. The field loses its activity and the land owner's income becomes very small from a settled production. Thus resources have always been dissipated in the wild scramble to get a dollar today instead of many dollars over many days.

A great part of the income of the State of Oklahoma from taxation comes from the gross production tax upon the value of the oil produced. And while the State has the right to fix the rate of percentage of tax upon the income from the sale of oil, it has not the right to fix the price of oil, and consequently its income is cut in half today by reason of the present reduced prices, even though its reserves of oil are being depleted at twice the rate of several years ago.

Should the present low price of oil continue, I think that some form of State Governmental regulation of production of oil within the State is inevitable. The State itself will need that regulatory power to determine its income from taxation, to protect the value of the school lands and save from sacrifice its limited reserves of oil which are intended to aid in the support of its school system.

Land owners will favor such regulation to protect the value of their property. And lease owners will be in favor of it to protect their rights against the encroachment of neighboring operators, in times of overproduction and when it was wasteful to do so.

Need State Law He Says

I am becoming convinced we need some law in this State to enable us to protect our property—the oil under our ground—from the attempts of those operators who try to seize it and reduce it to possession by drilling wells on adjacent lands when economic conditions of supply and demand do not permit us to drill our wells and recover and market our oil at cost.

I believe that unless the petroleum industry itself—the oil men of the States where oil is produced and who have so much at stake, take this situation in hand immediately and study how this waste may be prevented, and formulate some plan which can submit to the law making does of the several States for regulation which will control this waste, we will see the legislatures of these States at their next sessions take this matter up themselves, and without the benefit of our experiences and suggestions, attempt to regulate our industry.

I think that this Petroleum Congress would do a wise thing if it would carefully consider this matter and possibly appoint a committee of lawyers and practical oil men to study it and prepare a plan for legislation desirable to the industry for submission to the legislatures of oil producing States.

Many suggestions of a not too revolutionary character will occur to such a committee, of rules to govern the production of oil which will not interfere with, but preserve the property rights of the land owner and lessee, and not be unduly hampering or burdensome to the operator, and which will conserve the interests of the public.

A few years ago operators might have believed that pinching a well, or holding a back pressure on it was detrimental to the wells. Very few experienced operators believe that today, but on the contrary, believe that if all the wells drilled in a pool were required to be pinched in, and a back pressure kept on them, that the ultimate yield of oil per acre from that pool would be greater than if they were permitted to flow wide open.

Had we operators in the Burbank and Tonkawa fields been compelled to flow our wells against 100 pounds or 200 pounds pressure, there is no doubt in my mind that the ultimate yield of these pools would be very much greater, and the public interest thereby better served. And there is no doubt we would not now have an overproduction in those pools.

May Regulate Storage

Another suggestion such a committee might consider is the thought that it is not within the right of a land owner or lessee to produce oil, reduce it to possession, and put it in surface storage, in surface tanks, steel or otherwise, where its most valuable content is lost by evaporation. It might be entirely within the police power of the State to enact a law to prohibit the bringing of oil from its natural reservoir and storing it in surface tankage unless such tanks were equipped with gasometers, or similar device, or were connected up with absorption plants.

Intelligent and uniform proration of purchases of oil from flowing wells—wells flowed through gas traps—against back pressure—will prevent overproduction and save the industry and the public from a repetition of the waste seen periodically in new oil fields. Legislation permitting purchasers and carriers of oil to enter into agreements regarding proration during periods of overproduction would help to stabilize production.

I claim no originality for the thought of proration as the remedy for overproduction of oil—Mr. J. E. O'Neil, late of the Prairie Oil & Gas Co., with his great understanding of oil country problems, and his deep sympathy for the producers of oil, first advocated the policy of proration—and refused to add to the burdens of the producer by further price cutting. His company has followed that policy until recently when they were forced to abandon it in part by acts of other purchasers and the folly of many producers who undersold their market.

Oil men know best the evils in the industry and how they may be corrected, if they can be corrected, by remedial legislation. And I wish to leave with you the thought that a competent committee of oil men and oil country lawyers should now be at work attempting to find the remedy for these evils so that should the State legislature attempt to find a remedy for us, we will in advance have given the matter our best thought and be able to offer some suggestion; or put forth the best argument possible that we need no remedial legislation.

EXPO. EXHIBITORS MOST ENTHUSIASTIC

(Continued from Page 121)

drilling equipment, had no trouble drawing a crowd at the western end of the avenue. The barkers harrangue "right this way, lay-dees and gents," got most of the old boys, who tiring of the shows stayed to marvel at the wonders of modern equipment. Iwana hair belts were used and the 80-foot standard steel derrick was furnished by the Rig Equipment Co., of Sand Springs. Link Belt drive was used and Parkersburg rig irons were in evidence.

"Wilfred" Woobank, a brisk young man with a bristling moustache, dominated a large space given to the display of the P. H. & F. M. Roots rotary pumps, which included a working model. He got much attention, or rather his pumps got the attention and Woobank furnished the music. Mr. Sexton, of the home office at Chicago, completed the "churchly" combination.

A chain driven friction clutch sand reel, made a satisfactory lot of noise at the Parkersburg Rig & Reel booth. J. M. Crawford president of the company, H. J. Lockhart, assistant to the president, and A. V. Wadsworth, superintendent of the plant, were present with D. F. McCarty, district manager.

The Producers & Refiners Corp. was represented by D. C. Wixson and T. T. Granger, who showed the achievements of the P. & R. by picture and map.

"Trimo Bill," Wortherspoon, who hails from Roxbury, Mass., brought out some fine features of the new Trimo wrenches, known wherever oil is produced. He had some fine samples of the product of the Trimont Manufacturing Co.

Swing joints and plug valves formed the chief stock in trade at the A. Y. McDonald Manufacturing Co. booth, dominated by the personalities of C. W. Jackson and C. L. Reeder.

The writer was ready for a nap by the time he arrived at the booth of Rand, McNally & Co., where T. J. Hayden, of Chicago, had charge.

The booth of the Superior Tube Co. was crowded during the demonstrations of the products of this company, which makes a tubular steel derrick, pipe and steel couplings. W. H. Mandeville had charge of the derrick business and Marvine Thomas told about pipe and couplings. S. J. Raphel and J. A. Thomas had plenty to say about things in general.

W. B. Hudson and P. E. Hudson of the Hudson Wire & Iron Co. told operators how to protect their refineries and drilling properties by the use of Page fences, which they distribute in the Southwest.

A. J. Fitzgibbon admitted he was Irish. He also admitted, or rather pointed with pride, to the fact that he represented the Wheeling Steel Corp., makers of steel drums and barrels, corrugated sheets, wire and cut nails, tubular goods of all kinds and many wire products.

J. A. Knox, of the Twin Packer Oil & Gas Co., Pittsburgh, demonstrated an extra wide underreamer.

Rest Room a Feature

The Oil Well Improvements Co., of Tulsa, is exhibiting control casingheads and roller savers and has provided a comfortable rest room for the weary oil man. Eugene Wright is in charge, which is a guarantee that it is in good hands. The company has a double space.

The Oxweld Acetylene Co. has two booths and is demonstrating oxyacetylene welding and cutting equipment. There is a model of a complete welding shop layout. Specimens of welded pipe joints complete the display. C. E. Ziesel is in charge assisted by six others.

The Matteson & Davey Co., of New York, accountants and auditors, and James L. Darnell, engineer, specializing in valuations for income tax and financial purposes, have a booth in charge of J. R. Klumpp, their Tulsa representative.

The Western Supply Co., with H. L. Gaddis in charge, has an exhibit of S. K. F. ball bearings made by the S. K. F. Industries, Inc., New York. It is first exhibit of its kind in the industry, Mr. Gaddis said. A demonstration of how the S. K. F. bandwheel equipment operates, and jack shaft, pitman and line shaft equipment is shown.

The Westinghouse Electric & Manufacturing Co. is demonstrating electric welding, a new steam turbine for rig lighting, and with the Western Supply Co. is showing a generator for lighting gasoline plants and for motor driven pumps. C. S. Carter of Tulsa is explaining these goods.

In the adjoining booth the Western Supply Co. is showing the Western improved three-jaw wire-line drilling clamp, Clulow tubing and sucker rod socket and Hardenburg underreamers, with F. E. Crotto as demonstrator. Samuel Maddaford explained the Worthington gas and gasoline engine, Laidlaw feather-valve compressor and the Westinghouse generator for lighting a combination of electric lighting and air starting equipment for vacuum plants.

The Gustin Bacon Manufacturing Co. of Kansas City has a display of auto tire and mechanical rubber goods, including packing belting and hose, with M. D. Duval and N. M. Grove in charge.

The Magneto Ignition Co. has a neatly appointed rest room at its display of Splitdorf spark plugs, K. W. magnetos and other oil field ignition equipment in charge of T. E. Day of Tulsa.

Occupies Four Spaces

The Rock Island Plow Co. occupies four spaces, showing its tractor with portable winch attachment for pulling rods, tubing and casing, and a power unit for pumping beam wells with a 4-cylinder internal combustion engine, which does away entirely with a reversible clutch. The engine operates on natural gas or gas line. With the display are J. L. Irwin, general manager; L. C. Cannon, trade manager; A. H. Gilbert, engineer and J. B. Fisher, chief engineer of the Waukesha Motor Co., credited with being the designer of the Liberty motor.

The Southwestern Specialty Co. is displaying Swartwout metal buildings and Swartwout ventilators with L. P. Russon and E. H. Morgan in charge.

The W. K. M. Co., Inc., of Houston, has a varied line including slips, tool joints, polish rod clamps, beam hangers, combination releasing and jar-down spear, standing valves, break-out tongs, back-up tongs, "Set Fast" screen, Emsco screen, W. K. M. Fish Tail bit, drill collars, and rotary tool joints. J. D. Nixon, B. L. Ligon, L. O. Koen, J. W. Gillaspie, C. S. Campbell are at the booth meeting the trade.

The Harrisburg Pipe and Pipe Bending Co. with E. C. Frey, general manager and E. B. Corbett of Houston, Texas, in attendance, shows forged seamless steel products for oil country uses, and T. I. W. back-up and break out tongs made by the Texas Iron Works, Houston.

The Progressive Brass Manufacturing Co. of Kansas City, is displaying oil field standard brass goods, and A. N. Porter, general manager, is there to show the line. It is a handsome booth, not altogether filled with oil region goods.

Westcott & Greis, a Tulsa firm, has a fine display in two booths with J. H. Satterwhite, H. B. Westcott, A. J. McEwan, H. Wahl, E. V. Zull, E. A. Frank, J. C. Diehl and George C. Davis to meet the trade. Meters, regulators and gate valves are shown, the products of Metric Metal Works, Erie, Pa.; the Westcott Valve Co., of Seneca Falls, N. Y.; the G. M. David Regulator Co., of Chicago, and the Merriam Co., of Cleveland, Ohio.

Derrick Display

The Tulsa Rig & Reel Manufacturing Co. occupies a large plot with an American steel derrick, equipped with American steel bull wheels and pony bull wheels. This is in charge of Walker S. Estes, while A. Lea Keltner is showing a Twin City tractor for pulling and cleaning out.

The Crowell Packer Co.'s booth is presided over by W. H. Lynch, with S. P. Tschappat and Hugh E. Robinson as assistants, telling the merits of their valve-in-head packers, tubing oil savers, landing heads, casing oil savers and tubing supports.

The Brown Welding & Machine Co., of Breckenridge, Texas, is interesting the trade in Devil's Pitch Fork, Devil's Steel Hand and Brown fishing tools for pumping wells. C. H. Brown and Cleve Johnson are with the display.

The Milwaukee Tank Works is showing oil pumps and gasoline pumps, for filling stations, and air compressor. E. A. Canavan is doing the honors.

The Midwest Building Material Co. is demonstrating a No Kol automatic oil burner, which burns distillate and has a Mueller furnace on display. C. A. Sanderson, president of the Mid West company, and J. J. Collier, treasurer, are there with L. R. Milam and R. A. Brown.

Scribes on the Job

The National Supply Co. was giving everybody a chance to win a traveling bag, free to the winner. All newspapermen took chances. The National force was out in full sail and several sales were made. H. G. Trimble, manager of sales, Toledo, led the crew. R. H. Hill, E. V. Carr, W. E. Palmer, R. W. Gordon, and I. G. Wetherill were among those actively present.

Harry (Heinie) Hinish, of the Shaffer Specialty Co. grew enthusiastic about the materials he was showing in his booth. They included the Shaffer Almetal sucker rod support, the Shaffer sucker rod socket and the Dowmetal piston, which Heinie said was made from salt. Personally, the writer was unable to see how salt would make a good piston, but when Heinie said it was composed of magnesium chloride and alloys, the mystery cleared somewhat.

Heinie had the firm back of him, too. E. J. Shaffer, president of the company, sure was on the job.

The Bradford Rig & Reel representatives had gone to lunch when their booth was visited. Everybody knows the company and most of the men, anyhow. Their wares are sure enough popular in the fields.

Rotary chains, called the Rex Chabelco chain, were displayed in the next booth by the Chain Belt Co. T. F. Scannell, W. H. Brandt and R. E. Davis were the glad-handers.

Champion air compressors for service stations were found in the next booth. They are made by the Champion Penumatic Machine Co., of Chicago, and were displayed by H. H. Kenka. The Clear Vision Pump Co., of Wichita, was in charge of Emory Crouse and Leo Spalding of Tulsa.

C. B. Kennedye and J. H. Clay were in charge of the model plant exhibited by the Cross Cracking Process Co. H. G. Durnell showed the Durnell pumping powers and E. N. Koonsman and J. J. Osterman displayed the Moody Automatic Spider and Tubing Catcher. Roustabouts will appreciate it. The Pratt & Whitney exhibit showed the standard pipe and casing thread gauges and templates which are used by pipe manufacturers to get the correct threads on pipe.

Tulsa Autos Need This Paint

Cement makes good paint. A. P. Sinclair, in charge of the Portland Cem-Cote booth, says so, and he showed the reason. He stamped on it with his heel, rolled it around the asphalt, spat upon it and burned it viciously with a small torch, all to no avail. The paint came up smiling, natural as life. He said it was fireproof and one of the newspapermen, at least, believes him. It is distributed by the Missouri Paint & Varnish Co.

The Dresser Manufacturing Co. is exhibiting pipe line couplings and insulating couplings in connection with the display of the Oklahoma Natural Gas Co. Merrill N. Davis, general sales manager, represents the company at the exposition. As usual, Merrill wore the "smile that won't come off."

The Oil Conservation Engineering Co. had a tank up and some real swing line equipment, and conservation tank vents with flame snuffers on display. J. A. Stough was handling the information from this booth.

The Apollo Magneto was shown by M. C. Elworthy and E. A. Grigsleit of the

(Continued on Page 126)

National Turnbuckle Derrick
100% Salvage

Portable
Windproof
Durable

Only Double Locking Girth Device

The top is supported by 12x-12-inch legs, framed so that deadwood and side support cannot jar out.

(THE TOP)

National Turnbuckle Derrick Co.
Mahan, McCarty & Besse
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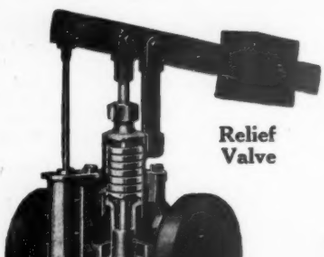

No Springs or Packing

To Cause Trouble On the Line

Here is a valve with no springs or packing—an ideal protector for the pipe line. It may be set for any relief and it will open without accumulation of pressure and close tight without loss of pressure. The Davis Semi-Balanced Relief Valve is suitable for gas, air, water or oil pressures up to 200 pounds. It is single seated, tight closing with hollow disc and full size port opening—and it is silent.

Ask the G. M. Davis Co., 409 Milwaukee Ave., Chicago, Ill., for the catalog that tells all about it.

DAVIS VALVE
STEAM SAVERS SINCE 1875
SPECIALTIES

FRANCE METALLIC PACKING

FOR ANY PRESSURE

Air, Gas, Steam or Ammonia

Floating Type
Fig. 178 Standard Ammonia Packing
for Stuffing Box

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$25.00 Per Inch Dia. of Rod

Adopted as standard by Ingersoll-Rand and many others. It is guaranteed to give satisfaction. We have packings that have given fifteen years' service.

Send for Catalog and List of Users

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Bracnhes: Western Supply Co., P. O. Box 1824, Tulsa, Okla.
A. C. Stucky, 222 Warwick Blvd., San Antonio, Texas

EASTERN FIELDS

(Contiued From Page 36)

G. W. Freshwater has a very light pumper in the Berea grit at a second test on district, Pleasants County, the Creek Oil Co. has a duster in the Big Injun sand at a test on the Jacob Martin farm. In Greenbrier district, Doddridge County, the Raccoon Oil & Gas Co.'s test on the August Drainer farm is a very light pumper in the Big Injun sand. In New Milton district, the same company got another when it drilled No. 4 on the James Kelley farm through the same formation. On Third Run of the Little Kanawha River, DeKalb district, Gilmer County, the Pittsburgh & West Virginia Gas Co. drilled its test on the Miller heirs' farm through the Big Injun sand, a fair gasser. On Jobs Run of the Little Kanawha River, the same company's test on the David Linger farm is a good gasser in the same formation.

On Seaman fork of Reedy Creek, Reedy district, Roane County, the Seamans Oil Co. completed and shot in the salt sand No. 7 on the J. M. Seaman farm, not good for more than 2 bbls. a day. On Long Run, Central district, Doddridge County, the Creed Oil Co. got a duster when it drilled its test on the A. B. Smith farm through the Big Injun sand. This location is 1 mile in advance of production.

Southwest Pennsylvania

The southwest Pennsylvania fields completed very few wells during the past week. At Ingram, Chartiers Township, Allegheny County, the J. D. White Oil Co. drilled a test on the Dixon lot through the 100-foot sand, a duster in that formation. Near Burgettstown, in Beaver County, McCloy & Co. drilled in a test on the Frank McCann farm, reported good for 2,000,000 feet a day. In the Chippewa district, Joseph R. Edwards has a 2-bbl. pumper at No. 4 on the Elmer E. McDevitt farm. In South Beaver Township, Graham Bros. & Co. have a duster at a test on the Graham heirs' farm. In Dunkard Township, Greene County, unknown parties drilled a test on the A. J. Beall farm through the Big Injun sand and dry. Two miles from Burgettstown, in Beaver County, S. A. McCloy & Co. have completed a 2,000,000-foot gas well on the Frank McCann farm.

The Manufacturers Light & Heat Co.'s second test on the William Auld farm, drilled more than a week ago and started with an initial production of 225 bbls., has now been completed and put to pumping. It is producing 60 bbls. a day.

CANADIAN FIELDS

(Continued From Page 44)

will use it for a test near Irma, on Section 25-46-7w-4. This location is close to British Petroleums, Ltd., No. 1, Section, 36-45-7w-4.

Southern Alberta

In Many Island Lake district, southern Alberta, Community Oil Wells, Ltd., Section 19-14-1w-4, is cleaning out its hole to 2,471 feet preparatory to drilling deeper. Many Island Oil & Gas Co. is drilling around 300 feet. Canadian-American Oil & Gas Co., Section 31-13-1w-4, is drilling below 1,300 feet with some gas.

In Sweetgrass district, southern Alberta, drilling operations are practically at a standstill.

In British Columbia, Boundary Bay Oil Co. has finished a deep test in the Fraser Valley area, near Vancouver, at 4,000 feet, without securing commercial production.

At Oil Springs, Lambton County, the Oil Springs Oil & Gas Co. recently finished cleaning out the Bridges gasser, which had become salted up, but failed to bring back the production.

REFINER'S VIEWPOINT STATED BEFORE PETROLEUM CONGRESS

By Julius A. Germany

The problems that confront the oil industry, and especially those that burden the small refiner, have continued with increasing importance until a solution must be found or else more referees appointed. If the referees are appointed they will also officiate at the commercial demise of all those adventurous spirits who call themselves "Independent Producers."

Julius A. Germany

The so-called "Independent Producer" complains at the pipe lines and larger purchasers, yet that same producer will sell his crude to the big company at from 10 to 25 cents per barrel less than to the smaller refiner, and does it year in and year out. He seems to prefer to sell to the merchandiser than to the manufacturer of his raw material.

The refined market does not always follow the crude price so as to make a uniform difference between raw and finished products. This is a natural result because the large concerns carry in stock tremendous quantities of raw material which they undertake and of right ought to refine at a profit. If the stored crude is high, gasoline should reflect its cost. If it is cheap, then gasoline should be low in proportion. On these occasions the small refiner without storage must either shut down or run at a loss. If he has crude in storage, the premium he paid for it is the difference in a profit and a loss. He must therefore cease buying. When he does, there is an apparent surplus which is often sold, as it is now, at less than the posted price or accepted market, whereas, if he could buy on equal terms with the pipe line company, the periodical surplus would be less frequent and possibly entirely avoided. Inevitably the producer suffers along with the small refiner. It seems that good sense would prompt him not only to deal upon an equal basis with small companies but to give them the advantage wherever possible for their fight is common. They reap the same adversity and share the same prosperity.

Gasoline Stampedes

Every business has its active and dull periods. A 10-day quiet in the refining business will drive the average refiner to desperation and stampede him into

exhibit of its kind in the industry, Mr. tubing supports.

cutting his gasoline a cent below the market.

The consumer desires to purchase, at the lowest price whatever commodity may be necessary in his business or pleasure. He is never interested whether the seller is making a profit. Enormous sums have been spent in an effort to please him and at the same time increase gallonage sales by the distributor. There may have been too many refineries built in 1919-20, but the economic loss in overbuilding refineries is not comparable with the unpardonable waste in marketing. I dare say there are enough filling stations in the Mid-Continent Field to reasonably supply the entire territory west of the Mississippi. Not only that, but filling stations have become things of architectural beauty and places of luxury. Should your refinery superintendent be as extravagant as your marketer, you would run your plant without a superintendent. The public demands no such expenditure. The cost of selling gasoline today is frequently more than the manufactured price. It cannot be contended that this is economically sound or even good sense. Thousands of men are employed merely to put wind into tires and water in radiators. So long as the industry as a whole commits itself to such unjustifiable cost in the distribution, just so long will the public be dissatisfied with the price of oil products. Eliminate the high cost of distribution and you will eliminate a large part of public complaint.

I have sometimes thought every seller of gasoline should be required to keep posted in his place of business a distillation of the goods handled under a sufficient penalty to insure the truth of his advertisement. This would tend to cut out the mixtures sold by many independent dealers during the summer. If it is blended it ought to be so advertised. Both straight runs and blends should show the initials and end points. If this were done the consumer would understand why one station can undersell another.

Must Serve New Uses

Each individual operator must of his own initiative invoke such economies as will enable him to survive. He must study the markets; find new uses for his products. Note the interesting paper of Henry L. Doherty advocating an intelligent and aggressive campaign for the development of apparatus for consumption of our heavy products, an aggressive campaign to secure use of oil wherever it has advantage over other fuels.

Some small refiners happily situated have found outlets for a large part of their heavy ends through domestic consumption. It has been profitable to them and satisfactory to their consumers. When once an efficient oil device is installed in a home, that consumer is sold and will continue to burn oil so long as it is available regardless of the price of coal. The industry has been aggressive in the production of oil but has not been aggressive in demonstrating to the public its many valuable uses. On the contrary it has waited for the users to create a demand. What refiner knew five years ago the difference in the value of oil and coal consumed in locomotives? The enormous demand of railroads was left to be discovered by the railroads. Shall we let the housewife discover its advantages over coal for domestic consumption?

Both producer and refiner must be active in search for a continuing supply. They cannot neglect statistical information. It has been the hope of every small refiner to be able to have in storage large quantities of gasoline and a bountiful supply of crude at the opening of the spring market. More of them realized that hope last spring than any former year. Relying upon the increased consumption, they felt sure of being able to market every gallon at a profit. But they were not informed as to the amount of winter stocks. If they had known in January and February the total of refined products ready for market, no refiner could have been excused for having the enormous stocks of May and June. They should have had this information and can get it for the future by cooperation with the industry as a whole. He who fails will stand in his own light and lead his competitor to commit the error of last spring and thereby again bring about the very condition that confronts the industry today.

There are large and small producers and large and small refiners. Each is a complement to the other and essential to public welfare. If there were no small refineries an arrogant monopoly would control the market. If there were no large ones, pipe lines would not belt the country, the market would always be uneven.

KANSAS FIELDS

(Continued from Page 48)

ready for a shot after making 8 bbls. of oil and 7 bbls. water naturally from sand at 2,690-2,720 feet.

In Elk County, Clark and others had a machine for No. 1 Jackson, C SE NW, Section 26-29-9.

The Empire Gas & Fuel Co.'s No. 1 Woodbury, SE cor. SW SW, Section 32-18-15, Osage County, was abandoned after getting a hole full of water at 2,290 feet.

Several wildcat wells in Greenwood County were found to be dry recently. J. B. Jones' No. 1 Hall, NW cor. NE SW, Section 28-25-11, was abandoned at 2,785 feet. Jess Willard and others' No. 3 Grundy, SW cor. SW SW, Section 7-27-11, was abandoned at 1,665 feet. The same operators' No. 1 Harrison, NE cor. SW NE, Section 25-27-10, was dry at 2,200 feet and the same operators' location for No. 1 Cross, NE cor. SE NE, Section 12-27-10, has been abandoned. Harwood & Winters had a rig for No. 1 Jackson, SW cor. Section 1-25 S. The same operators' No. 2 Teichgraeber, SW cor. SW NE, Section 11-25-8, was good for 25 bbls. naturally from sand at 2,293-2,328 feet.

Polhamus and others' No. 5 Diebert, CWL SW NW, Section 3-25-9, was shut down at 2,316 feet. The Theta Oil Co.'s No. 7 Souder, NE cor. SE SW, Section 3-23-13, was drilling at 300 feet. The Cosden Oil &Gas Co.'s No. 1 Clopton, C SE SE SW, Section 18-22-11, made 90 bbls. naturally from pay sand at 2,079-81 feet. The Pulaski Oil Co.'s No. 1 Oliver, NW cor. SE NE, Section 8-23-11, made 375 bbls. in 8 hours after shooting sand from 1,895-1,946 feet with 140 quarts.

MEXICAN FIELDS

(Continued from Page 48)

ing in brown limestone at 2,695 feet, a deep hole now. Its No. 11 there has set surface casing at 525 feet in a blue shale.

At Ebano, Mexican Petroleum Co.'s No. 18 Chijol is flowing by heads at 2,096 feet, which probably means a well; its No. 19, same, is drilling in shale at 1,235 feet; No. 29 La Dicha is spudding, and No. 30, same, is drilling in shale at 915 feet. At Culebra, north of Ebano, and north of the Tamesi River, the Huasteca (Mexican Petroleum) is making a deep test of its No. 2, which is now drilling in limestone at 3,025 feet.

In El Barco, Mexican Gulf Oil Co.'s No. 43 is drilling in gray limestone at 2,300 feet.

Mexican Sinclair Petroleum Corp. scored two pay completions the past few days, bringing in two good producers in Lot 3 of the Cascalilao sector, of the Panuco Field. The wells were: No. 13, completed at 1,850 feet, rated good for 3,500 bbls., and No. 16, completed at 1,880 feet, rated good for 7,000 bbls. Transcontinental Petroleum Co.'s No. 30, Lot 4, same sector, is a 2,000-bbl. well at 2,050 feet. Over in the Federal zone of the Salvasuchi sector, of the Panuco district, Sol Oil Co.'s No. 3 Salvasol, is rated 1,500 bbls. at 1,415 feet, which marks it the second shallowest producer over 1,000 bbls. in the Panuco Field. The rains have set in at last in earnest, and as a result, field work, already delayed somewhat by bad roads will probably be further retarded.

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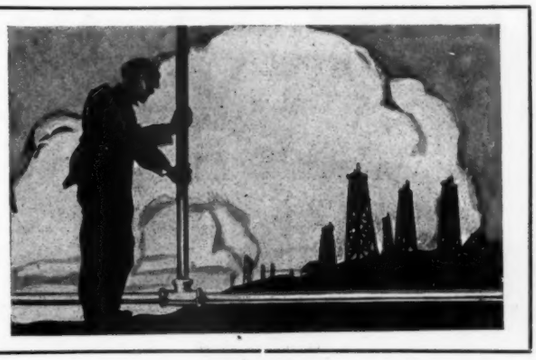

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EXPO. EXHIBITORS MOST ENTHUSIASTIC

(Continued from Page 123)

Power Engineering & Ignition Co., Inc.

Dean E. Foster displayed his baffle for absorption towers.

A model laboratory was assembled by the Cosden, Empire, Marland and Tidal companies. The Sinclair Co.'s portrayal of the history of oil was called "From the Well to the Consumer." It showed the pumping wells, pipe lines, refinery operations, tank cars and filling stations. It was one of the most popular booths on the grounds. J. L. Harp, S. D. White, and J. M. Bellamy were in charge.

Graham Brothers' Truck in the center of the street, near the south entrance attracted considerable attention.

The Refinery Supply Co. had a wonderful display of precision instruments for scientific work in the laboratory as well as those for other uses.

Cosden & Co. had one of the most striking displays, showing a complete line of refined products. W. E. Espey was in charge. Others in the booth were J. M. Giltner, C. C. Dawkins and M. H. Duffield.

W. A. Schleuter featured a mono air machine, automatic and continuous, used to show the air content of natural or casinghead gas, as a part of the large exhibit of scientific and testing instruments put out by the C. J. Tagliabue Manufacturing Co.

Precision Instruments Shown

L. C. Ferguson and F. C. Klein retailed the virtues of Gilbert & Barker pumps to interested retailers of gasoline. The Bubbs cracking process was explained by W. R. Howard, G. R. Simons, C. J. Pratt, A. C. Bogardus and A. R. Chandler of the Universal Oil Products Co.

Kewanee unions and regrinding valves

(Continued on Page 134)

GROUP 3 MARKET IS FIRM DESPITE CHANGES

(Continued from Page 26)

price concessions to move their output. There were a couple of large purchases for delivery over the month during the past week. Those who keep in close touch with the situation state that stock accumulations are unlikely. Fuel oil is weak in North Texas and North Louisiana and several other refining areas and the price reductions which have occurred will probably bring lower prices to Group 3 in spite of the satisfactory demand of the past month. The gas oil situation was unchanged.

The reduction in the Standard of Indiana tank wagon did not affect the demand in Group 3 and as previously explained, prices are not unchanged. Some sales over the balance of the month at present spot prices are known.

Natural Gasolines

Natural gas lines continue as the product showing the greatest strength in Group 3 and the entire Mid Continent area. Some sales of Grade A were reported as high as 8¼ cents during the past week and comparatively little is moving under 8 cents. Another encouraging development of the past week in regard to the future market trend of this product were sales over November in line with the present spot prices. Even the manufacturers of the natural gasolines have feared from week to week that their period of prosperity was short lived. The market situation is apparently secure for October, with favorable prospects for November. The demand is strong for all grades.

NAVAJO SALE NEXT MONDAY

FARMINGTON, N. M., Oct. 8.—Attendance at the sale of Navajo leases October 15 is expected to be large. Geologists of 50 major oil companies have studied the territory. Commissioner Herbert J. Hagerman says he suspects a tendency to "bear the whole business" but believes the leases will be sold for satisfactory prices; although it is not thought anything like Osage prices will be realized, because the territory is largely wildcat, the expense of transporting equipment and drilling will be high, and the regulations of the Interior Department are held to require large expenditures.

TO REHEAR W. VA. GAS CASE

WASHINGTON, Oct. 10.—The United States Supreme Court has granted the petition of West Virginia for a rehearing, November 19, of the case decided in favor of Pennsylvania and Ohio last June regarding the attempt to restrict the sending of natural gas to those States from West Virginia.

A. P. I. MEETING DATE

The fourth annual meeting of the American Petroleum Institute will be held at the Statler Hotel, St. Louis, December 11, 12 and 13, 1923.

OKLAHOMA FIELDS

(Continued from page 38)

found 6,000,000 feet of gas in Oswego sand at 1,530-50 feet. Titus and others were drilling at 720 feet in No. 7-A, SE cor. NE, Section 35-23-10. The Finance Oil Co. was rigging up at No. 17, CEL SE NW, Section 26-23-11. The Owen Osage Oil Co. got 6,000,000 feet of gas in the Wilcox sand at 2,088-2,105 feet after finding the Bartlesville sand from 1,670-85 feet dry in No. 244, CSL NW, Section 9-22-11. The Producers & Refiners Corp.'s No. 12, C NE SW NE, Section 16-26-6, was given a second shot of 25 quarts from 2,933-46 feet and a third shot of 40 quarts from 2,922-46 feet and swabbed 87 bbls. The Petroleum Drilling Co.'s No. 4, C SE NE, Section 17-25-9, was abandoned as dry at 1,735 feet after getting a show of gas from 1,643-1,725 feet. Clark and others were spudding No. 1, CWL NW NE, Section 21-24-9.

Wewoka Field

There was a growing amount of new work in the Wewoka Field. R. H. Smith was building a rig for No. 2, SW cor. SE SW, Section 28-8-8. W. R. Ramsey's No. 2 Townsite, CWL SW SW NE, Section 19-8-8, was drilling at 200 feet. Cain, Freeman and others had a boiler on the ground and were digging cellar for No. 1 Townsite, SE cor. NW SW, Section 20-8-8. R. R. Smith was spudding No. 1 Foster, SW cor. Section 28-8-8, and No. 1 Foster, SE cor. NW NE, Section 32-8-8. He had timbers for No. 2 Foster, SW cor. NW NE, same section, and was digging cellar for No. 1 Walker, SE cor. NE NW, same section. The Independent Oil & Gas Co. and the Atlantic Oil Producing Co. was digging a cellar for No. 3 Long, NW cor. SW NE, Section 32-8-8, and R. H. Smith was digging cellar for No. 4 Long CWL NW SE SW, Section 33-8-8.

In Kay County, the National Union Petroleum Co. had a rig on the ground for No. 1 Langtry, NE cor. SW Section 16-27-1w. The Alcorn Oil Co.'s No. 1 Miller, NW cor. SE, Section 24-26-1w, was drilling below 200 feet.

Tonkawa Field

The Amerada Petroleum Corp.'s No. 13 Goltry, CWL NE, Section 34-25-1w, Tonkawa Field, made 498 bbls. naturally the first 24 hours from sand at 2,158-78 feet, in a deeper sand. The same company's No. 23 Goltry, SW cor. NE, Section 34-25-1w, made 20 bbls. after shooting sand at 2,085-2,107 feet with 15 quarts and 2,145-50 feet with 10 quarts. The Pennok Oil Co.'s No. 6-B Endicott, CSL SW SE, same section, was drilling at 199 feet. McCaskey & Wentz' No. 15 McKee, CSL NE NE SW, same section, was good for 135 bbls. before a shot and increased its flow to 273 bbls. after a 20-quart shot in sand at 2,492-2,522 feet. The same operators' No. 41 McKee, CSL SW, same section, was finished for 123 bbls. after a 20-quart shot in sand from 2,574-93 feet.

Northwest of production McCaskey &

Wentz' No. 1 Mahoney, SE cor. Section 28-25-1w, plugged back from sand at 2,549 feet and shot sand at 2,170-80 feet with 2½ quarts and swabbed 10 bbls. the first 24 hours. The Cosden Oil & Gas Co. and the Marland Refining Co.'s No. 6 School Land, SE cor. NE NE, Section 33-25-1w, made 60 bbls. after a 10-quart shot in sand at 2,014-30 feet. The Comar Oil Co.'s No. 3 Endicott, SW cor. NW SE, Section 34-25-1w, an old well, made 58 bbls. naturally from sand at 2,176-87 feet after deepening. The same company's No. 6 Endicott, CSL SE NW SE, same section, another old well deepened, started at 285 bbls. naturally from sand at 2,200-11 feet, while No. 7-B Endicott, CSL SW NE SE, same section, was good for 52 bbls. at 2,153-2,200 feet.

Comar Co.'s Work

The Comar Oil Co.'s No. 3-B Beverlin, C SE NW, same section, was finished for 389 bbls. in Tonkawa sand at 2,452-2,551 feet. The same company's No. 4 Beverlin, CEL SE NW, same section, started at 80 bbls. from sand at 2,110-86 feet, an old well deepened, while No. 6-A Beverlin, CSL SW NW, same section, started at 850 bbls. from Tonkawa sand at 2,497-2,553 feet. The Comar Oil Co.'s No. 7 Beverlin, CSL NW, same section, an old well, was good for 730 bbls. in Tonkawa sand at 2,472-2,555 feet. No. 10 Beverlin, SW cor. NW NW, same section, made only 47 bbls. on the pump the first day from the same sand at 2,510-38 feet, and No. 16-A Beverlin, C SW NW, same section, was good for 210 bbls. from sand at 2,510-37 feet.

McCaskey & Wentz' No. 1-A McKee, SE cor. SE SW, same section, was finished for 360 bbls. after a 20-quart shot in Tonkawa sand at 2,555-86 feet. The Comar Oil Co.'s No. 4-B Ogg, CWL SW SE, Section 35-25-1w, made 36 bbls. on the pump from sand at 2,172-83 feet, and the same company's No. 13-B Blubaugh, CWL NW SW, Section 2-24-1w, started at 60 bbls. on the pump from sand at 2,210-20 feet. No. 18-B Blubaugh, NW cor SW SW, Section 2-24-1w, was drilling at 800 feet, and No. 19 Blubaugh, C SW SW, same section, was good for 150 bbls. at 2,075-2,109 feet.

The Comar Oil Co.'s No. 9 Ruzek, CSL SE, section 3-24-1w, made 35 bbls. after shooting sand from 2,623-36 feet with 40 quarts and shooting sand at 2,624-35 feet with 40 quarts additional. No. 14-A Ruzek, SE cor. NE SE, same section, swabbed 67 bbls. from sand at 2,045-68 feet, and No. 15 Ruzek, CEL W half E half SE, same section, started off at the rate of 183 bbls. naturally the first 24 hours from sand at 2,594-2,603 feet. The Healdton Oil & Gas Co. was rigging up No. 11-A Rence, CWL SW NW, Section 11-24-1w.

Stephens County

In Stephens County the Magnolia Petroleum Co. was rigging up No. 6 Brooks, SE cor. NE NW, Section 25-1s-9w, an old well drilling deeper. Starr and others' No. 1 City Park, NE cor. SE NW, Section 20-2s-7w, was dry at 1,410 feet. The Magnolia Petroleum Co.'s No. 2 Hancock, C NE NE SW, Section 23-2s-6w, was dry at 2,370 feet. The same company's No. 4 Funk, SE cor. NE NW, Section 30-1n-8w, was rigging up to drill deeper at 2,020 feet and No. 7 Funk, NE cor. SE NW, same section, started at 210 bbls. from sand at 2,265-77 feet. The Carter Oil Co.'s No. 5 Ridge, CEL SE SE NW, Section 30-1n-8w, was drilling at 1,340 feet. The Glenhoma Oil Co. was building a rig for No. 1 Wadkins, SW cor. SE SE, Section 14-1n-9w.

Walter Gant and others' No. 1 Fillmore, C NE NE NW, Section 22-3s-6w, Jefferson County, was a standard rig. Hutton Brothers were rigging up a rotary at No. 1 Kaniatobe, C NW NE SW, Section 5-5s-7w.

In Tillman County the Marshall Production Co.'s No. 1-A River Bed, SW cor. NE NW, Section 8-5s-14w, a rotary rig with some tools, was shut down on account of the high water. Nearby, the Okla Texas Refining Co.'s No. 3 River Bed, SW cor. NE, Section 4-5s-14w, was shut down at 700 feet on account of the high water.

In Jackson County Wade, Shipp & Nash were drilling at 1,025 feet in No. 1, C SW NW, Section 36-2n-23w.

In Carter County the Magnolia Petroleum Co.'s No. 1 Wills, C SW SE SE, Section 26-3s-1w, was abandoned as dry at 3,000 feet. The Patsy Oil Co.'s No. 2 Hicks-Palmer, C NE NE NE, Section 6-3s-2w, was drilling at 1,010 feet. The Carter Oil Co.'s No. 32 Woodruff, C NW SW NW, Section 15-4s-2w, was good for 180 bbls. from sand at 2,385-2,415 feet. The Skelly Oil Co.'s No. 12 Stechi, C NE SW, same section, made 50 bbls. the first 24 hours from sands at 1,310-32 feet, 1,387-98 feet and 1,520-45 feet.

CALIFORNIA FIELDS

(Continued from Page 42)

87 Hill, was an irregular producer from the Foix sand for a short time. It was originally drilled to 3,800 feet and later plugged back to 3,600 feet and completed in the Foix sand at this depth. When this zone became depleted and the Meyer sand was shown to be more productive, the company decided to deepen it. Efforts to reach the Meyer sand, however, met with little success and this well, which has been drilling, except for a few short weeks while on production, for over a year, has finally been abandoned because of mechanical difficulties. The General Petroleum Co.'s new well was No. 7 Jalk, which has just been returned to production after being cleaned out. This well was originally drilled to 4,725 feet but has been plugged back to 4,690 feet. Production at present is about 800 bbls., the oil being clean and testing 34.3 degrees.

The Santa Fe Springs Oil Syndicate brought in a small new well with a maximum initial production of 500 bbls. The gas pressure on this well is small, only 100 pounds, but the oil, which tests 34.5 degrees, is unusually clean. The B. G. C. Oil Syndicate drilled 25 feet of hole during the week and suspended operations at 4,825 feet. The formation at this depth is a hard sandy shale, and, inasmuch as the well has shown very little encouragement, it would not be surprising to see the company abandon it as a dry hole. The Fisher-Gregg Oil Syndicate's No. 2 has reached a depth of 5,000 feet in its well No. 1 and, because of its depth and location, it is believed the company will abandon it within the next few weeks as a duster. The Standard Oil Co. only made 16 feet of hole during the week in its deep test. No. 2 Brownrigg-Keller and drilling will probably continue for several weeks, unless mechanical trouble develops. This well shows 7,201 feet of hole, the present formation being a hard sandy shale. The Standard put No. 3 Koontz on production early in the week after cleaning it out and deepening it to 4,470 feet. This well on the pump is doing 300 bbls. a day of fluid, about 20 per cent of which is water.

Long Beach

Production at Long Beach continues to increase. This increase in production is not due to any large individual wells but rather to the completion of several fair sized producers ranging from 1,000 to 3,000 bbls. a day. Judging by the number of wells due to be brought in during the next week or two, production in this field will undoubtedly show further gains. The largest well put on production during the past week was the Shell Oil Co.'s No. 1 Dobyns, a deep well, which was completed at 5,219 feet. This well came in making 3,000 bbls. a day of 22.5 gravity oil, with a cut of 25 per cent but it had settled the following day to 2,100 bbls. and the cut had been reduced quite materially, giving promise of eventually cleaning up. This well, which was redrilled and deepened to the deep sands, was originally completed at 3,200 feet and produced from this depth for some time before being deepened. George F. Getty brought in a new well, No. 7, which showed an initial production of only slightly less than the Shell's No. 1 Dobyns, but it, too, was bothered with water. The water in this well threatened to exclude the oil and it will

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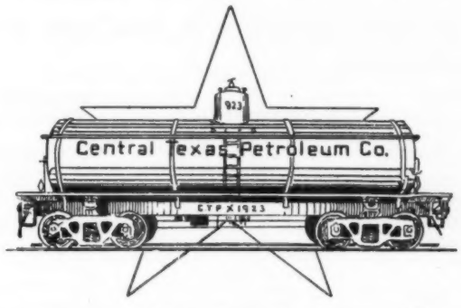

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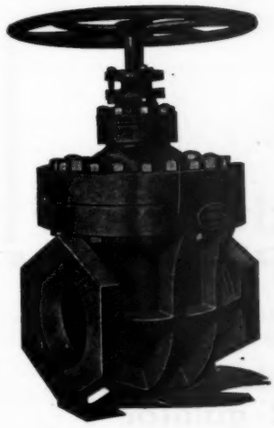

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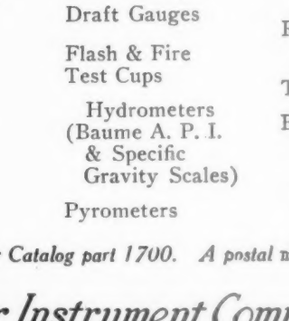

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probably have to be recemented. Getty struck the pay in this new well at 5,214 feet and the initial production, which was slightly less than 2,000 bbls., tested 24 2 degrees but showed an unusually high cut.

The General Petroleum Co.'s deep well, No. 1 Clock, which was scheduled to go on production at 6.000 feet, is still being held up with a fishing job which developed at 5,972 feet. The company has had no success in trying to loosen a string of 3-inch drill pipe and an attempt will be made to put this well on production at 5 015 feet. The Dabney Syndicate also completed a deep producer during the week by putting well No. 17 on production after drilling it to 5.001 feet. This well, which is flowing through a 1-inch bean under a pressure of 200 pounds, was good for 2 000 bbls. a day of 22.7 gravity oil with a cut of 1 per cent.

The Atlantic Petroleum Co. recocpleted No. 1 Maltby during the week after redrilling and deepening it to 4.370 feet. It was brought in through a 4½-inch oil string and the production, 2.000 bbls. a day, tests 23.9 degrees and shows a cut of 1 per cent.

The Bay Hills Oil Co.'s No. 1, which was completed last week as a 1.750-bbl. well from 4.238 feet, did not clean up as was expected and it was killed. The tubing is being pulled and after being cleaned out, the well will be recemented. The Coast States Oil Co. has completed No. 2 Campbell with a 4½-inch oil string set at 4.525 feet and preparations are being made to bring in a good producer within the next week. This well will probably be good for about 1.000 bbls. a day. The Fred B. Foster Co. is also making preparations to bring in a new well. No. 65 having been completed during the week at 4.002 feet. The Leonard Oil Co. deepened No. 1 Jones to 5 040 feet and returned it to production flowing 1.500 bbls. a day of 25 gravity oil through a ¾-inch bean under a pressure of 500 pounds. This well was originally completed in the upper sands, but, because of the fact that the oil was dirty, it has never been a satisfactory producer. Number 2 of the Pan Pacific Petroleum Co. could not be made to flow and as a result it was put on the pump. This well, which was completed at 4.462 feet, is pumping 200 bbls. a day of 23.6 gravity oil.

The Hub Oil Co. has started to deepen No. 1 Island, which has been producing for several months from 3.875 feet, and will carry it down to the deep sands. E. G. Lewis completed the Illustrated Review's No. 3 at 4.630 feet and this well, together with the A. T. Jergins Syndicate's No 3, completed at 4.470 feet, will probably be brought in within the next few days. The Sachs Oil Co. completed its first well at Long Beach and brought in a 1 500-bbl. well, producing from 4 056 feet. The oil, which tests 25.1 degrees and is unusually clean, is flowing through a ¾-inch bean under a pressure of 500 pounds. The Pomona Oil Syndicate also completed No. 1 at 4 075 feet, but it will probably be two weeks before it is finally turned loose. There was one well reported abandoned during the week, the Hall-Weber Oil Syndicate's No. 1 being lost at 3.780 feet. The company worked on this well for several months but the hole could not be cleared of junk. The Hawthorne Oil Co. brought in its second well at Long Beach during the early part of the week and boosted its output to 2.000 bbls. a day. The company's new well was No. 2 which hit the oil sand at 4.635 feet and registered an initial flow of 1.500 bbls. a day of 22 9 gravity oil. It is flowing through a 1-inch bean under a pressure of 600 pounds.

Huntington Beach

The continual decrease in production in Huntington Beach is due to the fact that the weekly completions have dwindled to three or four small wells which do not offset the normal decline in the older producing wells and to the intrusion of edgewater to some extent. It is believed that present conditions will prevail for some time and that the field will also continue to show small decreases. All of the wells put on production during the past week were small and none of them resulted in a flowing well. The Auburn Oil Co. probably completed the largest well, its No. 2, finished at 4.901 feet, making 225 bbls. a day of 21 gravity oil. The output, however, is cutting about 15 per cent.

The Industrial Engineers returned the old Hurst Oil Co.'s No. 1 to production after deepening it to 2,610 feet. It was formerly producing from the 2.000-foot level and the addition of this 610 feet of hole resulted in a 200-bbl. well producing 18.6 gravity oil, which showed a cut of 3 per cent. The Holly Oil Co. and the Texas Holding Co. completed small pumpers, the latter company's well being the larger of the two. Number 4 Turley, of the Holly Oil Co. was completed at 4.630 feet and showed a flow of 100 bbls., 20 per cent of which was water. The oil, however, from the Texas Holding Co.'s No. 3, which was completed at 4.800 feet, was clean. This well showed an initial production of 110 bbls. of clean 24 gravity oil.

The Petroleum Midway Co. is experiencing a good deal of trouble on its Columbia properties with water. The company's No. 2 on Columbia lease No. 1 was plugged back from 5.000 feet to 4.900 feet and when put on the pump the well showed a production of 50 bbls. of water. Number 2 on Columbia lease 2 acted similarly, it being originally drilled to 5.550 feet and plugged back to 5.275 feet. This well pumped 100 bbls. of fluid, over 70 per cent of which was water.

Miscellaneous Drilling

The only completion in the Torrance-Lomita district was the Fortuna Oil Co.'s No. 1, which was completed at 3,715 feet and started off flowing 1,100 bbls. a day. The oil from this well is clean and tests 18.2 degrees.

The Shell Oil Co. has plugged back its Redondo Community well from 4.805 feet to 3 600 feet and will test for production at this depth. The prospect of securing production in this well, however, is not very favorable. The Chandler-Canfield Midway Oil Co. set a 6¼-inch oil string at 3,698 feet in No. 7 Torrance and should put this well on production within the next few days.

The Union Oil Co.'s No. 1 Callender has been very consistent and continues to produce at the 1,200-bbl. rate. The Standard Oil Co.'s Anaheim wildcat, No. 1 Wagner, is being held up at 1.050 feet as the result of a fishing job and no progress has been made during the past few days. The Oak Ridge Co. set a string of 6¼-inch casing in its No. 1 Rossi at Bandini and will tests out a reported showing found at 4.656 feet, within the next week or 10 days.

MAY STORE OIL AT OSWEGO

OSWEGO, N. Y., Oct. 8.—The New York, Ontario & Western is considering building storage tanks here for crude oil, according to Victor Belisle, local official. Six of the large boats of the Rutland-Lake Michigan line and scores of other boats now making Oswego a port of call use this fuel and have been asking for a supply of it repeatedly, but were unable to obtain any. Several weeks ago the Standard Oil Co. brought two large tanks here and unloaded them on its box factory property, along the lake front. The Standard Oil supplies numerous manufacturing concerns hereabout with oil, and may bring oil here by boat instead of in tank cars as at present.

AIR POSTAL GASOLINE AWARD

NEW YORK, Oct. 8.—The Standard Oil Co. of New York was awarded the contract to supply the Postoffice Department with 9 to 18 tank carloads of gasoline at the Government air service station located at Long Island during October. The New York company's bid was 11¼ cents. The Atlantic Refining Co. supplied the gasoline under a similar contract during September for 11.49 cents.

INVITE REYNOLDS TO BE SECRETARY

(Continued from Page 106)

the oil was 'free oil,' produced by the independent companies. This was what we called free oil, not under the domination of the major oil interests.

"Today 75 to 80 per cent of all the oil is produced by the Standard Oil or major companies. This means that not more than 25 per cent of the oil in the United States is produced by independents.

"Independent companies can only survive on free oil and the reduction of the price of crude oil is destroying your own source of supply. In behalf of the producers who are trying to solve the difficult situation, let me ask you not to lend your voice, ear or vote to any effort to reduce the price of crude oil."

Public Interest in Oil

E. E. Smith, of the Smith Oil & Refining Co., declared that the time has now passed when any business can proceed successfully on the theory of "the public be damned."

"The public has come into the oil business to stay," said Mr. Smith. "Owing to the peculiar condition existing today the oil business finds itself under public domination. It is a fact that the industry must reckon with and no great changes in the price of crude or finished product of petroleum can be made without such changes being justified.

"Without doubt much legislation will be proposed during the coming winter which might seriously cripple our industry. We are facing an organized group of propagandists and without a strong organization ourselves, we cannot expect to successfully cope with the dangers confronting us.

"There are dangers in strong organizations disregarding outside interests and while the American Oil Men's Association will be primarily acting in the interests of the petroleum industry, it must at all times see that its activities will be in no way detrimental to public welfare for the time is passed when any industry can proceed successfully on the theory of 'the public be damned.'

"The industry must organize to meet the attack of self-seeking politicians with facts that will give the frank truth of conditions in our industry to the public. This organization must take care that it shall achieve two results:

"First: All activities must be for the good of the public.

"Second: Sound business methods must be spread throughout the petroleum industry."

Closed With Banquet

Fred H. Wickett, of the Sapulpa Refining Co., who was expected to speak on the "Refiners' Viewpoint," was obliged to disappoint the members. He has been absent from the city for a long period and did not know he was to take part in the program until his return a very short time before the meeting of the oil men. When he did return to his office in Chicago, it was to take part in an important meeting of the board of directors.

The feature of the final day was a banquet in the gold room of the Congress Hotel. Sheldon Clark, as toastmaster, introduced the chief speaker, United States Senator James A. Watson, from Indiana, who came out very strongly against the Government in business.

Referring to Government control of the railroads and the condition in which they were returned to their former management he made a strong point of the fact that "Government operation of whatever industry spells despair to Republican Government and destruction of all business." Turning to the oil industry, he said prices might be too low now, but as a basic and most essential industry, oil is bound to come into its own.

L. V. Putnam who spoke on "Moulding Public Opinion" urged the independent oil men to advertise their product and to take the public into their confidence.

Sheldon Clark Optimistic

"The oil industry has passed the crisis and now is on the upward climb," Sheldon Clark, vice president of the Sinclair Refining Co., declared.

"In the history of every big industry there is a peri d of transition when things look dark and gloomy," he said. "I believe that the present situation we are facing, which I admit is a critical one, is brought about by an economic condition due to over supply.

"Contrary to the general belief it is my opinion that the crisis is passed. We have gone through the transitory period and are now on the upward climb.

"Statistics show that the peak of production of oil occurred in July and August and reports indicate a big falling off in the daily production of crude oil through the United States and Mexico. While the petroleum industry is the second largest in the country, it is also the youngest and as you know youngsters are subject to all kinds of passing ills. I really believe within the next five years the oil industry will be the largest in the world."

Registrants at Convention

First Day

Ackerman, G. H., James B. Berry's Sons Co., Chicago, Ill.
Allison, A. Roy, Lloyd Breckenridge Grease Co., Hammond, Ind.
Anschuetz, Ralph F., Daily Oil News Report, Chicago, Ill.
Anson, I. Arthur, Altitude Petroleum Co., Chicago, Ill.
Archambault, I. A., Pennsylvania Oil Co., Evanston Ill.
Bagee, Frank W., Metal Hose & Tubing Co., Brooklyn, N. .Y
Barber, W. H., W. H. Barber Co., Minneapolis, Minn.
Barrowman, R. E., Liberty Oil Co., Des Moines, Iowa.
Bayard, Harry, Ennis Bayard Petroleum Co., Chicago, Ill.
Bean, F. A., Wayne Tank & Pump Co., Fort Wayne Ind.
Beck, Carl W., Stevens Grease & Oil Co., Cleveland, Ohio.
Beitzel, R. A., Empire Refineries, Inc., Chicago, Ill.
Bennett, S. A., Wilson & Bennett Mfg. Co., Chicago, Ill.
Bergan, Thos. B., Utica Compressor Co., Inc., Utica, N. Y.
Beroth, Carl O., Acme Petroleum Co., Chicago, Ill.
Berry, John T., Home Oil & Supply Co., Kansas City, Mo.
Biever, J. H., Milwaukee Tank Works, Chicago, Ill.
Birge, George, Birge Oil Co. Sherman, Texas.
Bodle, G. L., Fred G. Clark Co., Chicago, Ill.
Boergert, Alfred J., Central Oil & Gas Service Saginaw, Mich.
Borgoltie, E. F., Acme Petroleum Co., Kansas City, Mo.
Boyles, J. D., Wayne Tank & Pump Co., Fort Wayne, Ind.
Bowden, C. A., Guarantee Liquid Measure Co., Rochester, Pa.
Bergan, W. A., Bergan Oil Co., Kankakee, Ill.
Bradley, C. F., Gulf Refining Co., Minneapolis Minn.
Bramy, George A., Brown Sheet Iron & Steel Co., St. Paul, Minn.
Brandli, H. E., Carson Petroleum Co., Chicago, Ill.
Breckenridge, W. H., Lloyd Breckenridge Grease Co., Chicago, Ill.
Brennan, C. M., Advanced Petroleum Co., Chicago, Ill.
Brennan, R. S., James B. Berry's Sons Co., Chicago. Ill.
Brigham, E. R., North American Car Co., Chicago, Ill.
Brinss, M. A., Curtis Pneumatic Machy. Co., St. Louis, Mo.
Bruce, W. R., Thos. H. Sheldon, Columbus, Ohio.
Bruyere, Paul T., Swan & Finch Co., Chicago, Ill.
Burge, H. A., Wayne Tank & Pump Co., Chicago Ill.
Burke, J. W., Motor Oil Co., Logansport Ind.
Cahoon, C. W., Carson Petroleum Co., Chicago, Ill.
Callaghan, A. J., American Oil Corp., Jackson. Mich.
Cannady, W. H., Shaffer Oil & Refining Co., Chicago, Ill.
Campbell, J. H., Industrial Petroleum Co., Chicago. Ill.
Cannon, E. L., Warren Refining & Chemical Co., Cleveland, Ohio.
Carson, J. M., Taxman Refining Co., Chicago, Ill.
Carlos, D. J., Seneca Petroleum Co., Chicago, Ill.
Collins, Sam C., Marland Refining Co., Ponca City, Okla.
Clark, Sheldon, Sinclair Refining Co., Chicago Ill.
Collins, Thos. P., Industrial Petroleum Co., Chicago, Ill.
Cousino, E. A., Acme Petroleum Co., Chicago, Ill.
Coulter, G. H., Mass-Cleve-Ak Sign Co., Massillon, Ohio.
Couser, W. C., Refiners Oil Co., Dayton, Ohio.
Cox, R. H., Morrison Brothers. Dubuque, Iowa.
Christensen, N., United States Air Comp. Co., Cleveland, Ohio.
Cuneo, Walter E., Indian Refining Co., Chicago, Ill.
Cushman, E. S., Gilbert & Barker Mfg. Co. Springfield, Mass.
Deacon, W. T., St. Louis Surfacer & Paint Co., St. Louis, Mo.
Dohrmann, H. A., Midland Specialties Co., Chicago, Ill.
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Klaus, Charles W., Keystone Oil & Mfg. Co., Chicago, Ill.
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Rice, W. W., Barnsdall Refining Co., Chicago Ill.
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Smith, Gordon M., Smith's Filling Station, Gladwin, Mich.
Snell, Harry T., The Texas Co., Chicago, Ill.
Spear, Roy E., Mutual Oil Co., Kansas City, Mo.
Spencer, Frank E., Spencer Petroleum Co., Chicago, Ill.
Staebler, E. W., Staebler Oil Co., Ann Arbor, Mich.
Staebler, J. Fred, Staebler Oil Co., Ann Arbor, Mich.
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Taxman, Phil H., Taxman Refining Co., Chicago, Ill.
Taylor, Frank F. Stevens Grease & Oil Co., Cleveland, Ohio.
Thomason, L. E., Marland Refining Co., Kansas City, Mo.
Thompson, E. R., St. Louis Tin & Sheet Metal, St. Louis, Mo.
Thompson, T. F., Tidal Refining Co., Chicago, Ill.
Thomson, Geo. A., Indian Refining Co., New York City.
Thune, John M., Petroleum Age Chicago, Ill.
Torrence, J. E., White Star Refining Co., Detroit, Mich.
Triplett, H. G., Ohio Valley Ref. Co., St. Marys, W. Va.
Trolinger, J. R., Empire Refineries, Inc., Chicago, Ill.
Vennett, M. C., Reliable Oil Co., Michigan City, Ind.
Waldo John B., Oil & Gas Journal, Tulsa, Okla.
Wall, W. E., Fred G. Clark Co., Cleveland, Ohio.
Walker, J. A., Morrison Bros., Dubuque, Iowa.
Waller, O. R., The Filling Station, Chicago, Ill.
Warner, C. H., Jr., Indiahoma Ref. Co., St Louis, Mo.
Weimer, E. G., American Can Co. Chicago, Ill.
Wheaton, A. W., Jr., A. W. Wheaton Brass Works, Newark, N. J.
Whitaker, A. S., Omar Refining Co., Tulsa, Okla.
White, Robt. Bruce, Valvoline Oil Co., Chicago, Ill.
White, O. C., Indiahoma Ref. Co., Detroit, Mich.
Whitehair Harry, Whitehair Bros., Tulsa-Cleveland.
Wilbert, J. S., Acme Petroleum Co., Chicago, Ill.
Wool, A. F., Chestnut & Smith, Tulsa, Okla.
Williams, G. B., Johnson Oil Ref. Co., Chicago, Ill.
Zust, W. L., Inter State Oil Co., La Crosse, Wis.

Second and Third Days

Asp., A. F., Otis Chemical Co., Chicago Ill.
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Allen, A. B., Skelly Oil Co., Minneapolis, Minn.
Andrews, Ray, Penna Oil Co., Madison, Wis.
Blazer, Paul G., Great Southern Ref. Co., Lexington, Ky.
Black Sam, Penn Okla. Oil Corp., Pittsburgh, Pa.
Bradley, C. F., Gulf Ref. Co., Minneapolis, Minn.
Bowden, C. A., Guarantee Liquid Measure Co., Rochester, Pa.
Bowen, E. W., Independent Oil Co., Delphi, Ind.
Cook, Grover C., Cook Oil Co., Allegan, Mich.
Cannady, Wm. H., Shaffer Oil & Ref. Co., Chicago, Ill.
Cushman, E. S., Gilbert & Barker Mfg. Co., Springfield, Mass.
Collins, Thos P., Industrial Petroleum Co., Chicago, Ill.
Couser, Wm. Chas., Refiners Oil Co., Dayton, Ohio.
Dison, S. W., Refiners Oil Sales Co., Dayton, Ohio.
Davis R. C., Canfield Oil Co., Cleveland, Ohio.
Dickerson, N. K., Indiana Oil Ref. Co., Columbus, Ind.
Daniels, C. C., The Texas Co., Chicago, Ill.
Dom nick, C., Marland Ref. Co., New York City.
Douglass, F. E., Guarantee Liquid Measure Co., Rochester, Pa.
Eastman, D. T., Eastman & Co., Chicago, Ill.
Eickmeyer Earl E., National Recording Pump Co., Dayton, Ohio.
Ecker, Samuel, Grandfield Oil & Ref. Co., Grandfield, Okla.
Erzinger, E. G., Erzinger Oil Co., Kankakee, Ill.
Fulrath, W. K., Fulrath Oil Co., Savanna, Ill.
Finney, J. Merle, Cleveland Steel Barrel Co., Cleveland, Ohio.
Ford, J. T. United Consumers Corp., Milwaukee, Wis
Grimes, F. S., Grimes & Madigan, Grand Rapids, Mich.
Gerrodette, J. E., J. E. Gerrodette & Co., New York City.
Haineston, Grafton, Johnson Oil Ref. Co., Chicago, Ill.
Heppert, V. A., Sterling Service Stations, Inc., Milwaukee, Wis.
Huffine, J. E. Grandfield Oil & Ref. Co., Grandfield, Okla.
Hill, Ted, Camden Pet. Co., Chicago, Ill.

GURLEY

The Oil Man's Standard in
ENGINEERING INSTRUMENTS
— Since 1845 —
W & L E. GURLEY TROY, N.Y.

STEELEX
Ball and Seat
BRONZEX
Ball and Seat

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REMEMBER THE PACKAGE

THE CHARLES N. HOUGH MANUFACTURING CO.
"Where the Reliable Oil Well Supplies Come from"
Franklin, Penna.
PUMPING EQUIPMENT

THE Imperial makes tremendous savings on pipe line work.

The 15, 25, and 50-pound sizes are small enough to transport easily and quickly, yet large enough to insure an adequate supply of gas at a saving of 75% over the cost of acetylene in cylinders.

IMPERIAL
Portable Automatic
Acetylene Generator

The Imperial Type B is the only portable acetylene generator made that is practical for work in the oil fields—especially for carrying along in laying pipe lines.

Even while being carried from place to place, it will generate gas 3 to 5 cents cheaper per cubic foot than you can buy it in cylinders. Eliminates delays and the expense of drayage and express.

Generation is entirely automatic. When you light your torch it begins—when you extinguish your torch it stops.

Carbide to water type; medium pressure; made in 15, 25 and 50-pound sizes.

Write for complete catalogue showing portable and non-portable Automatic Acetylene Generators and full information about Welding and Cutting Equipment and Supplies.

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Pipe Line Contractors
Welded Line Specialists

We are pioneers in the welded line business, having laid one of the first large welded lines in this country. This was eight years ago and we've been "at it" ever since.

We at present have a good supply of line of all sizes on hand, to contract laid.

Also, we buy and sell gas and oil well supplies and casing, wreck leases and pull wells by contract.

GAS METERS

We can save you money on most any size or make of used proportional gas meters. Write us for further information.

STOCKMAN & FEES
CHANUTE, KANS.

Larkin Improved Sand Pump

(PATENTED)

This illustration is the famous Larkin Sand Pump which is found in every oil field throughout the world.

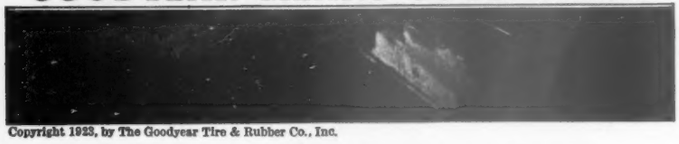
Besides a full line of Drilling and Fishing Tools and Packers of all kinds and sizes, we manufacture the LARKIN Patent Never Slip Pipe Grip, which does away with the old-fashioned way of putting in and is cheaper, more durable and easier handled.

casing with rope and tongs.

LARKIN & CO.

Butler, Pa., U. S. A.

GOODYEAR MEANS GOOD WEAR



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HOSE
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OIL SUCTION or DISCHARGE HOSE
ROTARY HOSE
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Asbestos and Rubber Sheet for both field and refinery service
PUMP VALVES
SLUSH PUMP SLEEVES
SWAB RUBBERS

Goodyear Mechanical Rubber Goods serve so well because they are designed and built with a full understanding of oilfield conditions and refinery duty. They stand up to the job and wear longer.

For service records, or for any other information about them, write to Goodyear, Akron, Ohio, or Los Angeles, California.

GOODYEAR

BELTS · HOSE · VALVES PACKING

Hausmann, Geo., Jr., Washington Oil Co., Washington, Mo.
Harris, A. R., National Petroleum News, Chicago, Ill.
Hood, R. E. E., Marland Ref. Co., New York City.
Hancock, Frank, Yale Oil Corp., Yale, Okla.
Haggenpos, John, Johnson Oil Ref. Co., Chicago, Ill.
Johnson, J. J., Johnson Oil Ref. Co., Chicago, Ill.
Kitts, T. J., Skelly Oil Co., Minneapolis, Minn.
Kilmartin, W. A., Chicago Tubing & Braiding Co., Chicago, Ill.
Kennedy, J. C., Shaffer Oil & Ref. Co., Chicago, Ill.
Langston, R. E., Wayne Tank & Pump Co., Ft. Wayne, Ind.
Lindquist, C. R., Asiatic Petroleum Co., Ltd., New York City.
Madigan, F. A., Grimes & Madigan, Grand Rapids, Mich.
McKay, A. M., Baker & McKay, Flint, Mich.
Murphy S. E., Empire Refiners, Inc., Tulsa, Okla.
McGurk, Joseph, Camden Petroleum Co., Chicago, Ill.
Molter, L. L., Molter Oil Co., Leaf River, Ill.
Mayfield, F. S., Bartles Shepherd Oil Co., Waukesha, Wis.
Mathews, Wm., Pennsylvania Oil Co., Delaware, Ohio.
Moulden, R. S., Stevens Grease & Oil Co., Kansas City, Mo.
McGovern, E. T., McGovern Place Oil Co., Racine, Wis.
Norton, R. D., Skelly Oil Co., El Dorado, Kans.
O'Connor, J. E., Petroleum World, Chicago, Ill.
Pritchott, W. H., Wayne Tank & Pump Co., Atlanta, Ga.
Peacock, S. F., W. H. Barber Co., Chicago Ill.
Plane, Henry G., Johnson Oil Ref. Co., Chicago, Ill.
Riekal, Andrew, Colonial Oil Co., Grand Rapids, Mich.
Spaulding, S. B., Arrow Oil Co., Lansing, Mich.
Skidmore, C. L., Aun Oil Co., Flint, Mich.
Sargent F. C., Viking Pump Co., Cedar Falls, Iowa.
Stewart, W. R., Stewart Refiners Sales Co., Chicago, Ill.
Sweney, G. I., Sweney Gasoline & Oil Co., Peoria, Ill.
Shaw, G. C., Oil Trade Blue Book, Chicago, Ill.
Schaffer, Geo. C., Novo Engine Co., Chicago, Ill.
Sherwin, F. B., Triangle Oil Co., Chicago, Ill.
Shapiro, Carl, Northern Oil Co., Virginia, Minn.
Tamlin, A. G., LaPorte Independence Oil Co., La Porte, Ind.
Tudor, Robert L., Great American Gasoline Co., Kokomo, Ind.
Vanderberg, Wm. C., Vanderberg Bros. Oil Co., Holland, Mich.
Wyth, I. G., Viking Pump Co., Cedar Falls, Iowa.
Warren, V. K., Warren Petroleum Co., Tulsa, Okla.
Wackman, L. B., Wackman Steel Barrel Co., St. Louis, Mo.
Wright, S. B., The Texas Co., Chicago, Ill.
Wenger, Henry, Camden Petroleum Co., Chicago, Ill.
Warner, Al, Johnson Oil Ref. Co., Chicago Ill.
Theisen, J. J., Sieber Oil Co., St. Joseph, Mich.
Moody, R. T., Sieber Oil Co., St. Joseph, Mich.
Hanson, John, Hanson Oil Co., Burlington, Wis.
Snyder, J. W., Billings, Mont.
Baber, A. M., Six Shooter Oil Co., Billings, Mont.
McSavaney, H. S., The McSavaney Co., Springfield, Ohio.
Cadle, John, The McSavaney Co., Springfield, Ohio.
Phillips, Clay E., The McSananey Co., Springfield, Ohio.
Wagner, Clarence, Central Ohio Oil Co., Columbus, Ohio.
Gratton, Earl B. The Metalene Chemical Co., Chicago, Ill.
Reinbold, Earl A., The Reinbold Co., Newark, Ohio.
Miller, C. J., Western Ref. & Oil Co., Davenport, Iowa.

PENN-MEX GETS BIG WELL

PITTSBURGH, Pa., Oct. 8.—The home office of the Penn-Mex Fuel Co., in the Peoples Natural Gas Co.'s building, Pittsburgh, is informed by its field superintendent in Mexico that its No. 21 on the Alamo tract has been drilled deeper and its production increased to 10,000 bbls. a day.

STANDARD OIL SHIPMENTS

CASPER, Wyo., Oct. 7.—The Standard Oil Co. of Indiana shipped approximately 8,000,000 gallons of gasoline to Baton Rouge, La., for export during September. These shipments represented approximately 780 tank cars hauled in 13 trainloads.

RUSH MAY BE SUPERVISOR

Reed Rush, chief deputy of the Department of Petroleum and Gas of the California Mining Bureau, will be appointed to succeed Supervisor Roy E. Collom, who recently resigned, it is stated.

Tyden Seal for Protection

The Tyden Self Locking Seal insures absolute seal protection for storage tanks and pipe lines.

Placed on valves at tanks and pipe lines, it embodies, among others, following features:

Cannot be removed without being destroyed.

Each seal bears company name and consecutive number.

Requires no press or sealing iron.

Each seal is complete self locking lock.

Adopted by Treasury Department of the United States Government for sealing bonded freight in connection with customs.

International Seal & Lock Co.
Hastings, Mich.
Chicago Office: 617 Railway Exchange

KONSET

Way Out West

—where oil wells and bathing beauties are running wild—KONSET is keeping a level head and batting 1000. Ask the next "big" oil man from California that you meet if KONSET is used with cement in setting casing out that way. "Sure Mike," he will answer. "It does the work in 72 hours—we've been using it a long time out there." He's right—they have.

Write for Name of Nearest Distributor

THE SULLIVAN CO.
MEMPHIS, TENN.

Cold Pipe Benders

Standard of the world
HAND AND MOTOR OPERATED
14 sizes of Machines.

What it costs to bend pipe our way per bend:

1" pipe, 5 cents. 4" pipe, 25 cents.
3" pipe, 10 cents. 6" pipe, 60 cents.
8" pipe, $1.00.

Send for Catalog **One Year to Pay**
American Pipe Bending Machine Co.
25 Pearl St., Boston, Mass

Cummins
Working Barrels

"DUPLEX"
for Sand and other STUBBORN Conditions

—

"SIMPLEX"
for NORMAL Wells

—

"NICHROME"
Steel Balls and Seats for ANY Condition

All Sold on a Money Back Guarantee of Super-Superiority and Solid Satisfaction

Will You Spend a Dollar to Save Two?

Order Now!

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Boston, Mass.
50 Congress Street

NEW OIL MAP
Nocona District

Covers an area about 15 miles square in north central Montague County, Texas. Shows land and lease owners, towns, railroads, highways, pipe lines and drainage and locations of all wells in and drilling. Scale 2,000 feet 1 inch. Size 42x42 inches. On cloth, $6; paper, $3.50.

HEYDRICK MAPPING CO.
WICHITA FALLS, TEXAS

OIL CITY REFINING SITUATION IMPROVES

OIL CITY, Pa., Oct. 8.—The situation in the northern Pennsylvania refined territory continues to improve from day to day. This improvement has been almost entirely due to the fact that for months the refiners of this district have, with very few exceptions, either had their plants shut down entirely or operating at a very small percentage of capacity.

A number of the various petroleum products can not be obtained from refiners at present. Notable among them might be listed the various grades of water white. It is an interesting fact, however, that some brokers are offering these same products for sale. Those well informed are of the opinion that a portion at least of the recent heavy demand for these products was brought about by some of the brokers who were buying and holding the product for higher prices.

There has been no change of any account in the gasoline market in this section. The demand so far as the refiners are concerned is practically as heavy as it has been. However, the reports from the various marketers are to the effect that there has been a material decrease in the amount of motor fuel actually being consumed. This is due to the fact that the tourist trade in this section is virtually at an end.

Refiners of this area predict a heavy demand for gasoline during the winter. They point out the amount being used now is much in excess of the same time last year and that the number of automobiles in use has also grown considerably. They also state that the average car owner is driving his machine more than he did last year at this time on account of lower gasoline prices and the good business conditions which prevailed during the summer.

Kerosene is the market feature again, prices having shown another good advance during the week. Almost all of the northwestern Pennsylvania refiners are booked ahead on this product and about the only place where it can be bought for immediate delivery is from brokers who have some in storage. A very few of these are offering water white at lower than the present refinery quotation.

Cylinder stocks are again looking up with increased demand, fewer offerings and a higher price. One of the features of the market at present is 600 steam refined. The present quotation on this product is 10¾ cents. At one time during the summer sales were reported for as low as 7½ cents. This price recovery is the more remarkable when it is considered that in the meantime the price of Pennsylvania crude has been reduced. In this connection it is interesting to note that one of the largest refiners in western Pennsylvania is again running Pennsylvania crude.

Neutrals have been holding their own and this was all that was expected at this time of the year. Fuel oils and wax are strong.

W. P. R. A. TRAFFIC OFFICES

P. A. Conway, traffic manager of the Western Petroleum Refiners' Association, has established his headquarters at the Tulsa offices of the association which were recently removed to Tulsa from Kansas City. The traffic offices at the time of the removal of the association's headquarters remained at Kansas City until last week. A branch traffic office will be maintained at Kansas City.

PETITION IN BANKRUPTCY

GREAT FALLS, Mont., Oct. 6.—A bankruptcy petition has been filed in Federal Court against the American Refining Co. which owns a refinery located in this city. The petition was filed by the General American Tank Car Co. and Frank J. Huba of this city. The plant at the present time is under lease to the Homestake Oil Co.

Oil Field Service

THIS service consists of drilling and equipping wells and leases. Righting bad holes and fishing for operators and drilling contractors. Developing and managing oil and gas properties. Determining proper casing points and weights of casing to use. Removing water from flooded wells. Renovating old wells.

Practical and confidential scouting. Geological and engineering reports. Surveying and mapping. Surface and sub-surface contouring. Appraising oil and kindred properties. Estimating the present worth and future prospects of stock, bond and note issues of oil and kindred companies.

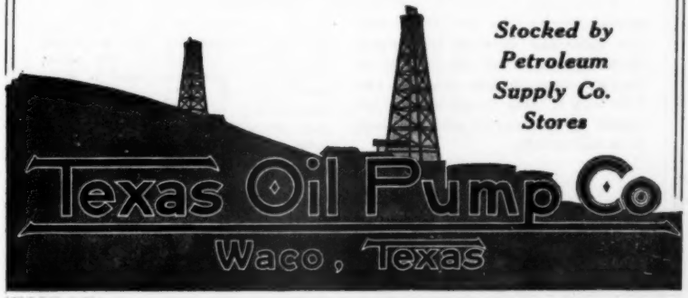
Supplying commercial leases, also acreage for drilling, located on carefully selected structures in the proven, semi-proven and wildcat fields of Kentucky, Oklahoma and Texas.

T. S. McGRATH
Kenyon Bldg., Louisville, Kentucky

You Cannot Lift Low Priced Crude

from small, settled wells at a profit unless you use good equipment.

The Roark Standing Valve reduces your lifting cost per barrel.



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The Tools For Hard Work

TRIMO users buy for long service. Long wear is built into TRIMO tools. Best possible design, embodying every operating convenience and feature of economy.

The Pipe Cutter

has a drop-forged steel frame, with forged steel cutting wheels. Fully guaranteed by the makers against poor materials or workmanship. All parts easily replaced. Three sizes, No. 1 cuts pipe ⅛" to 1¼"; No. 2 ½" to 2"; No. 3, 1" to 3".

Other tools having the

Quality Trimo Mark

are the

Pipe Wrench—Monkey Wrench
Chain Pipe Wrench

Buy of your dealer or write

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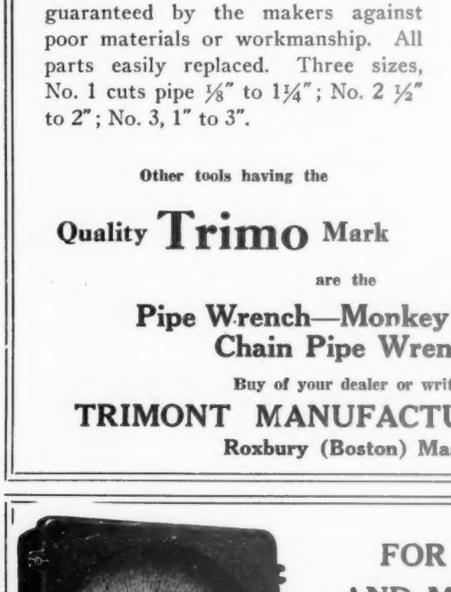
Roxbury (Boston) Mass.



FOR SECURING AND MAINTAINING CORRECT TEMPERATURES

You need a recording thermometer. Especially where the time element is important — like in the oil still.

TRADE MARK
BRISTOL'S
REG. U.S. PAT. OFFICE

Recording Thermometers

should receive the preference over the indicating type of instrument. Because—the charts are marked off in time arcs, so you can tell just how long it takes to reach a certain degree of temperature and how long it is maintained.

With a glance at Bristol's Thermometer, the operator can tell what temperature conditions are now, what they have been and in what direction they are pointing. It is unnecessary to stop and take readings as with an indicating instrument.

Ask for Catalog M-1302

THE BRISTOL COMPANY
WATERBURY, CONN.

Boston New York Philadelphia Pittsburgh Detroit
Chicago St. Louis San Francisco

EXPO. EXHIBITORS MOST ENTHUSIASTIC

(Continued from Page 126)

were displayed by the Walworth Manufacturing Co. Foster M. Poole was in charge of the Brown Instrument Co.'s display of all kinds of indicating and recording instruments for refineries and cracking plants. Incidentally, the display of precision instruments shown by the various companies at the exposition is one of the most complete that could be desired.

H. V. Lundy and L. C. Burchfield of the Triangle Blue Print & Supply Co. met old friends and made new ones. The Braun Corporation, guided by C. A. Nelson and M. J. Holmes, had a good display of laboratory equipment. L. M. Butler, G. I. Morris and C. A. Olson showed the refinery condensers as manufactured by the American Radiator Co.

The B. & C. Machine & Foundry Co. had Neilson safety sucker rod elevators and hooks and the Standlee swivel swab on display. E. W. Miller was in charge. Tulsa castings, made by the Oklahoma Steel Castings Co. for oil field work, were shown by R. P. Lester.

Children crowded around The Texas Co.'s booth to watch the toy train. Women crowded the children out of position to get the samples of refined wax for use on flat irons. The lighting arrangement and the golden Texaco running in an endless stream from the measuring can, made it a wonderful display.

E. R. Kyler, C. B. Irish and R. F. Doepel held sway in the Leader Iron Works booth. They enlarged on the wonders of Leader rivet-weld construction for station tanks and refinery equipment and their power driven rotary pumps.

Q. P. Stahlman had a lot of good information about the Dawes Electric Sign Manufacturing Co.'s filling station decoys. The Blackmer rotary pumps were expounded by F. E. Goodwin.

Other Live Wires Busy

"Charlie" Markey and R. E. Webber were in charge of the Link Belt Co.'s exhibit. G. M. Seamster and L. M. Robinson showed the A-1 Packers. C. Hobbs was the skipper at the National Car Seal Co.'s booth, where Beacon visible oil dispensers were displayed. Electric lights flashed on and off in the bodies of oil. Chester Rigs showed pumps made by the Wichita Pump & Equipment Co.

The Hughes rock cone bits were in charge of W. C. Morgan, of the Hughes Tool Co. They are used in rotary work where fishtail bits find the going too hard. Hughes bits are O. K. Mr. Morgan said so.

Just to show what calorizing will do to protect the wear and tear on pipes, the Calorizing Co. showed some tubes that had been calorized and others that had not. Surprising what a fellow will find out at the exposition. This calorizing is a great thing. J. F. Isaacs, C. A. Engler, E. W. Long and A. V. Farr, vice president, were at the booth.

A. B. Friedman and R. B. Munger were in charge of the American Metal Hose exhibit, which was a good one. Metal hose, (no, Eva, not the kind you wear) was shown in varying sizes and shapes.

R. H. Lee, a Pennsylvanian, was proud of his seamless steel barrels, valves and pumping equipment, manufactured by the Charles H. Hough Manufacturing Co.

John E. Hosier showed the Empire meter, made by the National Meter Co. a power direct connected with a gas engine was found at the Pattin Bros. Co.'s booth. A liquid safety valve that prevents evaporation, made by the Petroleum Safety Appliances Co., Inc., was shown by W. E. O'Meilia, sales manager. F. E. Cory had charge of the Eveready and Columbia batteries and electrical devices made by the National Carbon Co.

J. P. (Jim) Graver, president of the Graver Corporation, headed the force at

Quimby Screw Pumps

For oil, hot, cold, thin or thick at high or low pressure, 2 to 4,000 G. P. M. High efficiency. Great durability. Valveless, pulseless, noiseless. High speed for motor or turbine. Built since 1894.

WILLIAM E. QUIMBY, Inc.
Newark, N. J.

BAKER CASING SHOE CO.

Box 264 - S Huntington Park Sta. LOS ANGELES, CALIF., and Box 239 - S, COALINGA, CALIF.

MANUFACTURERS AND DEALERS

Oil Well Specialties for Advanced Methods Practical and Dependable

BAKER

Anchor Wall Packers
Baker Casing Shoes
Bridge Builders
Cement Retainers
Cement Plugs
Clean-Out Bailers
Dump Bailers
Die Nipples Water
Die Collars Tight
Gas Traps
Hinged Spiders
Heaving Plugs
Pitman Ends
Plain Casing Shoes
Regular Hook Wall Packers
Release Hook Wall Packers
Rotary Bits Baker Type
Rotary Hole Guides
Rotary Shoes
Rotary Tool Joints
Rotary Wall Hooks
Split Shoe Guides

All Supply Houses or Direct

Expert Well Shooting

We use only the best material the market affords and the best equipment money can buy.

Many of our shooters have been shooting wells for 25 years or more.

Phone or Write Our Stations as follows:

OKLAHOMA

Tulsa Office,—Osage 6743.
Garage—Osage 1276.
D. A. Koons—Osage 6284.
W. H. Swartz—Osage 441.
J. A. Balcam—Cedar 2657.
Willis Hill—Osage 2289.
Bartlesville—Robt. Camblin, 21.
Drumright— Chas. Thiret, 424.
Cleveland—Fred Harris, 154.
Okmulgee—George Eba, 654.
Sapulpa—C. Eshelman, 145.
Duncan—Lee Vandell, 217.

TEXAS

Breckenridge—Roy Richardson, 127.
Ranger—J. F. Tennyson, 126.
Gorman—P. W. Burdette, 159.
Mingus—James Dailey, 56.
Wichita Falls—Gary Young.

We also operate stations at Bowling Green, Scottsville and Owensburg, Ky.

The Eastern Torpedo of Ohio Co.
611 First National Bank Bldg.
Tulsa, Okla.

that booth. They make all kinds of refinery tankage, towers, stills, etc., in addition to storage tanks. J. E. Swanson, Charles Marner and Fred Miller were there, too.

The Nocoro ball and seat was the chief attraction at the Norris Bros. booth. F. H. Norris, D. E. Norris, P. B. Norris, Albert Porter and Richard Harbison attended to visitors.

R. C. Mason showed the Mason measure meter, which operates on a drilling cable and gives the depth of the hole. He also displayed the wire line shock absorber.

H. R. Leland had charge of the Columbian Steel Tank Co. exhibit. The steel tanks for distributing trucks attracted wide attention. The company also manufactures a full line of filling station and field storage.

C. A. Spreter, Jr., declaimed the virtues of the Blaisdell pump jack, made by the Blaisdell Machinery Co. F. S. Thompson had charge of the Standard Tank Car Co.'s booth and had a hard time keeping the festive kiddies from stealing all his artistic paper weights.

A. L. Meeks, with the S. M. Jones Co. showed sucker rods and MacDonell sucker rod pulling machines. A large line of fittings were on display at the Henry Vogt Machine Co.'s booth. E. E. Matheson and O. Kelly, factory representatives, showed the double packed stop cock valve put out by the Victory Manufacturing Co.

"Bob" Allen and "Charlie" Cullen sung the praises of the old reliable White Star valves and other Powell fittings. The Owen Osage Oil & Gas Co. showed its leases and lines on a large map. Heider tractors for pulling rods and tubing were advocated by Lon R. Stansbery.

L. D. Baird declaimed the virtues of the Ajax carburetor which operates on crude oil. Hunter Morrison showed the Hill clutch for shafting and engine. A large pipe threading machine made by the Landis Machine Co. was operated under the guidance of C. N. Kirkpatrick.

The Gaso Pump & Burner Co. had a huge pipe line pump on diplay. J. E. Winger, L. D. Armstrong and H. F. Stone were in the booth.

The American Cast Iron Pipe Co. had an interesting exhibit.

A real model of a standard tubular derrick with all equipment in place and the machinery in motion attracted crowds at the booth of the Lee C. Moore & Co. A model of a California combination derrick was also in place, offsetting the standard rig. The boys must have figured it for a "duster" as they stopped drilling on it. Other things of steel for the driller were also shown. W. D. Reese was present and happy over a recent addition to his family. C. R. Krause and M. R. Gayle completed the coterie of smiling countenances.

Truscon steel buildings, sashes and doors were advocated by W. E. Moore, W. K. Sparks and W. L. Quigley. Maloney bolted steel tanks were displayed in an adjacent booth.

D. L. Morrill and J. M. Moffett were in charge of the Midwest Piping & Supply Co.'s booth. The company bends pipe and makes coils, etc.

The Perfection vapor pressure tanks, made by Black, Sivalls & Bryson, Inc., took up several spaces. A. H. Black, E. F. Black, James Sivalls, Chas. P. Buck, W. H. Elliott and F. E. Large, made up the crew that outlined their virtues.

B. F. Palmer was in charge of the booth showing the Palmer control head, with steam snuffer attached. The new control head is ball bearing and has special packing as well as a two-side outlet. A time squib for shooting oil wells was shown by the M. & M. Manufacturing Co., in charge of C. T. Wise.

The White Motor Co. sure had some good prospects at its booth looking over the exhibit. Among others noticed there were Ed Reeser, president of the Barnsdall Refining Co.; George Locke, vice president of the same concern; C. B. Singleton, of the Roxana Petroleum Corp.; Mr. Neale and George Pohler, of Cosden & Co. Pat O'Connor, petroleum manager of the White Motors, was kept on the job answering questions.

Not a Dance Feature

The Highland cab (not the Highland fling) was the feature of the booth ruled by representatives of the Highland Body Manufacturing Co. Samuel Froome and Earl Barrett asserted that it "fits all bodies," but the representative of The Oil and Gas Journal failed to find one that would fit his. Perhaps Sam and Earl meant truck bodies.

Wilson latch tongs and Perfection underreamers were the "pieces of resistance" offered at the Wilson Oil Tools Corp.'s booth. The McGinity in charge there, says he's not the Little Joe McGinity from the bottom of the sea.

The H. H. Inhalator (cigaret proof) and other first aid appliances were offered in the Mine Safety Appliance Co.'s booth. The exhibits also covered a line of instruments for detecting poisonous gases, and demonstrations of masks were made, regardless of martial law.

The Clark Brothers Co., of Olean, N. Y., showed an 80-H. P. compressor and a Junior Clark drilling engine. They were worthy of the attention they received. The lineup of greeters was one cause for the attention, as it included C. P. Clark, W. G. Cummings, W. H. Bendean, O. B. Agner, G. W. Probst and C. L. Cron.

Hardened exhibitors will be interested in the announcement of a Pawhuska firm that it has a gas-tight device. Just how it will operate at conventions is not known, but the Gas-Tite Device Co., of Pawhuska, Okla., is making "gas tight devices that are gas tight," and they put them on top of tanks to prevent evaporation. T. H. Boyd and W. G. Kiser say their company can furnish a complete line in addition to the one they handed the public.

For people who like living a little at a time, the Southern Mill & Manufacturing Co. has a lot of sectional houses. Now a man can spend a week in the kitchen, shift to the front room for a few days and then to the dining room, and so on, section by section. The plan may not operate that way, but J. P. Francisco and W. H. Ahrens say they have a good idea for solving living problems in the oil fields.

Orifice meters and gas pressure gauges in actual operation were shown at the booth of the Foxboro Co. W. C. Brown, J. B. McMahon and A. J. Kerr were telling the good qualities of the line.

The Crane Co., of Chicago, had a fine display of pipe line and refinery valves and fittings. Edmund Burke, M. M. Link and H. W. Hoffman, engineers and N. E. Bleuler and C. B. Sanders answered questions.

In conjunction with the exhibit of the Kansas City Press & Tractor Co.'s lightning jack, the Stover Manufacturing & Engine Co. is showing Stover's good engine and other Stover material. Lee Madden, general sales manager, was a little late on getting on the job, but his presence was appreciated none the less.

King Petroleum had a rival in King Greeter Armitage of the Kunkle Valve Co. Armitage shared the lazy bench at the booth of the Smith Separator Co., that is, he was supposed to, but he was so busy giving his "greetings" to everyone (if you got one you know what I mean,) the bench got cold feet. However, Armitage was in a good place. His "greetings" probably would need a sep-

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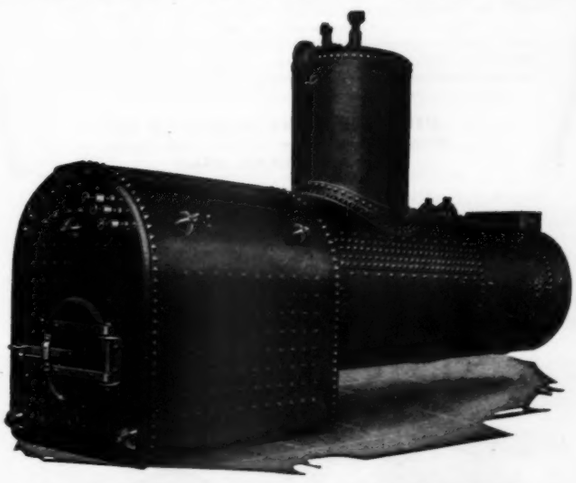

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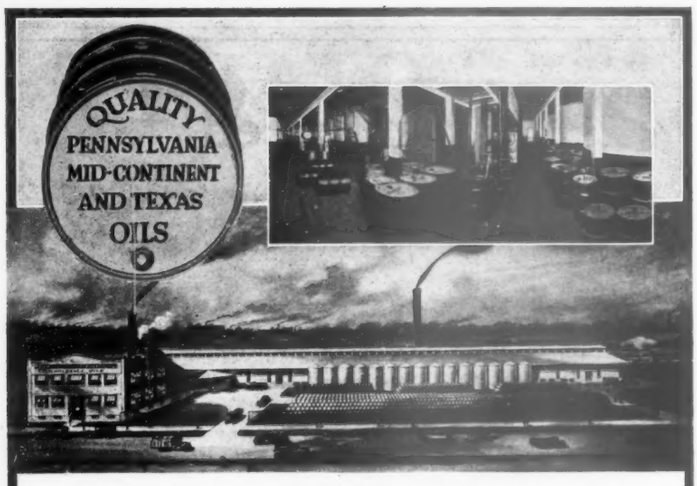

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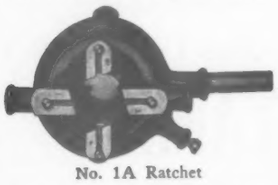

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FUEL OIL CONTRACT FOR SHIPPING BOARD

WASHINGTON, Oct. 8.—The Standard Oil Co. of New Jersey has been awarded a contract by Chairman Farley of the Shipping Board for supplying fuel oil at the rate of 1,065,000 barrels a month during the year 1924. The company bid $1.39 a barrel for delivery at New York, Boston, Philadelphia, Baltimore and Norfolk; $1.29 at Charleston, S. C., Savannah, Ga., and Jacksonville, Fla.; $1.10 at Tampa; $1.14½ at New Orleans, Port Arthur, Galveston and Houston, Texas.

Monthly deliveries in 1924 will be: New York, 325,000 barrels; Boston, 25,000; Philadelphia, 75,000; Baltimore, 85,000; Norfolk, 35,000; Charleston, 15,000; Savannah, 10,000; Jacksonville, 15,000; Tampa, 10,000; New Orleans, 150,000; Port Arthur, 20,000; Galveston and Houston, 150,000 barrels.

CALIFORNIA RECEIPTS

Receipts of California crude and refined oils at Atlantic and Gulf Coast ports for the week ended September 29, totaled 1,964,000 barrels, a daily average of 280,571 barrels, against 989,000 barrels, a daily average of 127,000 barrels for the week ended September 22:

	Wk. Ended Sept. 29	Wk. Ended Sept. 22
At Atlantic Coast Ports:		
Baltimore	340,000	70,000
Boston	160,000	.....
New York	1,064,000	262,000
Philadelphia	155,000	172,000
Others	150,000	*165,000
Total	1,869,000	669,000
Daily average	267 000	95,571
At Gulf Coast Ports:		
New Orleans and Baton Rouge	95,000	220,000
Daily average	13,571	31,429
Total Atlantic and Gulf Coast Ports	1,964,000	889,000
Daily average	280,571	127,000

*Revised.

Imports of Petroleum

According to figures collected by the American Petroleum Institute, imports of crude and refined oils at the principal ports for the week ended September 29, totaled 1,667,000 barrels, a daily average of 238,143 barrels, compared with 1,441,000 barrels, a daily average of 205,857 barrels for the week ended September 22.

	Wk. Ended Sept. 29	Wk. Ended Sept. 22
At Atlantic Coast Ports:		
Baltimore	30,000	.....
Boston	136,000	70,000
New York	370,000	190,000
Philadelphia	111,000	168,000
Others	191,000	118,000
Total	838,000	546 000
Daily average	119,714	78,000
At Gulf Coast Ports:		
Galveston district	466,000	277,000
New Orleans and Baton Rouge	268,000	504,000
Port Arthur and Sabine district	75,000	99,000
Tampa	20,000	15,000
Total	928,000	895,000
Daily average	118,429	127,857
At all U. S. Ports:		
Total	1,667,000	1,441,000
Daily average	238 143	205,857

CRUDE STATISTICS

The following table shows the runs and shipments by the various pipe lines in the oil fields of New York, Pennsylvania, West Virginia, Kentucky, Tennessee, Ohio and Indiana:

Daily Runs, September 25 to 30	
National Transit Co.	49,168
South West Pa. Lines	22,329
Eureka P. L. Co.	91,620
Buckeye P. L. Co. (Lima)	44,144
Buckeye P. L. Co. (Macksburg)	65,229
Cumberland P. L. Co.	93,826
Indiana P. L. Co.	3,867
New York Transit Co.	3,979
Tide Water Pipe Line (Pa. Oil)	32,584
Tide Water Pipe Line (Ill. Oil)	6,001
Total	412,647
Previously reported	1,146,882
Total	1 559,529
Average runs	51,984
Daily Shipments, September 26 to 30	
National Transit Co.	104,928
South West Pa. Lines	63,494
Eureka P. L. Co.	20,463
Buckeye P. L. (Lima)	44,985
Buckeye P. L. Co. (Macksburg)	50,000
Cumberland P. L. Co.	37,164
Indiana P. L. Co.	3,928
New Pork Transit Co.	5,029
Tide Water Pipe Line (Pa. Oil)	72,121
Total	392,112
Previously reported	1,375,719
Total	1,767,831
Average shipments	58,928

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Alcohol Tank Cars And Farmers Making And Using it Next

One of the recent developments in the alcohol plant at Baltimore, of the United States Industrial Alcohol Co., is the manufacturing of absolute alcohol on a large scale by a continuous distillation process. With thousands of gallons a day being produced by the new process and shipments made by tank cars, a thing unheard of two or three years ago, the cost to the consumer has been brought down to less than $1 a gallon. One of the chief uses for absolute alcohol is a blend for motor fuel.

E. S. Broussard, United States Senator from Louisiana, writes to the Baltimore Sun, in which, per headline, he "tells farmers the way to make farming pay is by repealing Chapter III of Volstead Act so that they can manufacture industrial alcohol from their waste products."

Everything that grows upon the farm can be turned into industrial alcohol at a price which would yield the farmer a handsome profit. Alcohol is the very best fuel for internal combustion motors. An average farmer out of his wastes and spoilages could produce an ample quantity to run his automobile, his tractor and his other farm engines and still have a surplus left to sell at a remunerative price. Given proper adjustment of auto motor and alcohol is 30 per cent more efficient than gasoline."

AMERICAN KEROSENE THE LIGHT OF ASIA

During 1922 the United States exported 895,000,000 gallons of kerosene valued at $83,000,000 and of this quantity 341,000,000 gallons or 38 per cent of the total was shipped to the various countries of the Orient and Australia, says A. T. Coumbe, Jr., of the Petroleum Division of the Department of Commerce. These returns indicate a substantial gain in this trade since 1913 when these countries received only 283,000,000 gallons or 27 per cent of the kerosene exported from America. Indicated consumption in that part of the world has increased about 6 per cent from 1913 to the end of 1922.

In considering the several sources of the kerosene consumed in these countries the returns for 1922 show that the United States supplied 54 per cent of the total demand against only 48 per cent of 1913. Other countries foreign to the territory, such as Russia, Persia and Egypt furnished 17 per cent of the market in 1913, compared to only 14 per cent in 1922. The proposition of kerosene reaching these markets from the local production of British India, the Dutch Indies and Japan has also fallen off during the last few years, the percentage being 35 in 1913 and 32 in 1922. Of the imported kerosene for 1922, America commanded 79 per cent of the trade against 74 per cent in 1913, or a gain of 58,000,000 gallons over the prewar year.

OIL POLLUTION IN BURBANK

The Department of the Interior has announced that the prevention of pollution of fresh water streams and surrounding property by petroleum oil in the Burbank Field has been realized. The Burbank Field contains 1,100 oil wells, all in close proxmity to each other; Salt Creek runs through the field. The regulations of the Secretary of the Interior applicable in the Burbank Field provide specifically the manner in which disposition shall be made of basic sediment and salt water of oil wells. All operators are required to construct and keep in constant repair dump holes or burning holes at each well to dispose of basic sediment and in case none is provided for any of the 1,100 wells, a fine ranging from $10 to $50 a day is assessed until regulations are complied with.

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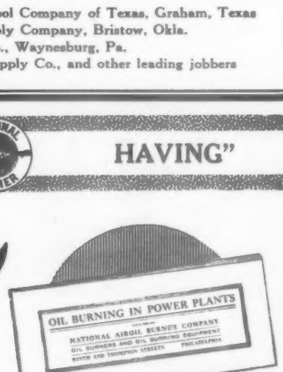

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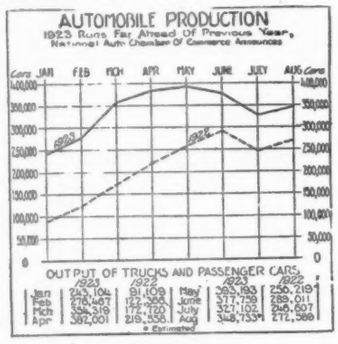
Motor to Every Two Families Is Nation's Midsummer Record

WASHINGTON, Oct. 8.—There were on July 1, more than 13,000,000 automobiles in operation in the United States, or about one car to every two families.

Automobile production this year, according to conservative estimates, will exceed 3,500,000 passenger cars and trucks. Making full allowance for obsolesence and export the number of automobiles in the country at the end of this year will exceed 14,000,000.

Automobile production was the amazing incident of the business recovery of 1922 but the records established last year have been drawfed by the eight months of 1923. The accompanying chart shows the wide spread between the production figures for the two years. At its lowest point in January, the 1923 production is only slightly less than June 1922, which he'd the record for the first eight months of last year. For the first eight months the production totals passed those for either of the entire preceding two years.



Based upon reports from 181 manufacturers, the department of commerce's report showed that up to September 1 the factories this year had turned out 2,431,063 passenger cars and 258,774 trucks (including fire apparatus and street sweepers). The entire output last year was only 2,339,414 passenger cars and 244,882 trucks, while the 1921 totals were 1,535,196 and 147,168, respectively.

The peak of production this year came in May, when 350,181 passenger cars and 3,238 trucks were turned out, later months showing a slight decrease, those for August being 304,010 and 30,251, respectively.

Demand Unceasing

There is no indication that the United States or any of the individual States are approaching the point of saturation in the number of motor vehicles in use. Evidence of this was brought out in the preliminary study by the good roads board of the American Automobile Association of the report of the United States Bureau of Public Roads showing the number of motor vehicles licensed. The increase in number of motor vehicles in the United States has continued at approximately the same rate of preceding years, states the Good Roads Board. In the States leading in numbers of motor vehicles, where the road programs also are in advance of the other States and where the first indications of approach to the point of saturation might be expected, the percentage of increase has kept pace and in some instances has outdistanced the records of the Southern States, where the road programs are in course of development.

An interesting deduction gathered fram the United States Bureau of Public Roads is the marked increase in numbers of motor trucks for the six months' period, compared with the entire year of 1922, indicating the rapid growth of the use of the motor vehicle for commercial purposes.

In all but nine States material increases were shown in number of motor vehicles registered during the six months' period of 1923 over the entire year's

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registration of 1922. With six months yet to go, the record of 1923 in all States will exceed that of 1922.

The prospect for sales during 1924 is good, even on the most conservative basis of calculation, says the Standard Daily Trade Service. The outlook for 1924 profits, however, is somewhat obscured at this time by the fact that many manufacturers are planning to greatly increase their production facilities. The current trend of automobile prices is unmistakably downward. But no price slashing movement of grave consequences is in prospect.

The drastic summer slump in automobile sales which some authorities believed would be the inevitable sequel to the unprecedented business of the first half of 1923, has failed to materialize. Not only did production and sales in August run well ahead of those for the corresponding period of last year, but they exceeded by a comfortable margin the totals for July, 1923. Introduction of many new models, the majority containing additional refinements, and reduced prices on a number of lines, undoubtedly had a marked influence in sustaining buying at the high point.

With production for the last four months of the year yet to be added, it appears certain that the industry will establish a production total for 1923 substantially greater than that for 1922, up to this time the banner year for the trade.

Big Replacement Demand

Urban buying particularly is holding up well under the stimulus of new 1924 motor car offering. Some of the farming districts, especially the Southern cotton growing sections, likewise continue as heavy buyers.

Accepting the trade's estimate that the life of the average car is seven years, the replacement demand for automobiles next year alone would aggregate 1,800,000 machines (the 1917 output).

The two chief factors that will sustain automobile sales at a relatively high level are: (1) The low prices now generally quoted, and (2) the constant growth in the partial payment method of doing business.

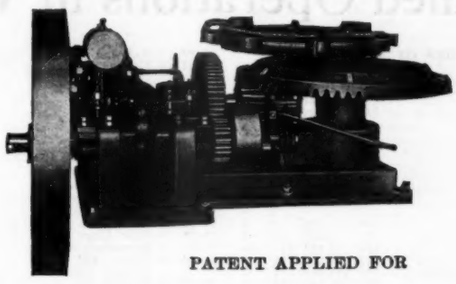
As a result of the steady decline which has been in progress for more than two years, motor car prices, broadly speaking, now are at the lowest level on record. Current prices are fully 30 per cent below 1920 levels; thus the way has been opened by thousands of persons who never before could afford to own automobiles. Equally important as a trade stimulant, is the growing willingness of manufacturers to sell cars on the installment plan. At this time fully 80 per cent of the total automobile sales are time sales with all signs indicating that this figure will be increased to 90 per cent next year.

It is probable that motor car prices will decline still further. More than 10 of the leading producers have announced reductions, while a number of others are known to be planning price cuts for the fall season. Price competition in the low priced field particularly is keen, although nothing approaching a serious quotation slashing war need be looked for at this time.

Probably the most encouraging recent development from the trade's point of view, is the improvement shown by the used-car situation. Automobile dealers are reported to have reduced the used car losses 10 per cent during the second quarter of 1923. Stocks on second hand machines in the hands of the dealers have been reduced to the lowest point in several years and now amount to hardly more than a month's supply.

TEXAS PROBING OIL STOCK SALE

AUSTIN, Tex., Oct. 8.—Investigation into stock-selling activities of a number of oil companies which have operated in Texas, but which moved to other States for the alleged purpose of escaping the new State "blue sky" law, has been started, Secretary of State S. L. Staples announces. The department will look into previous operations of such firms, he said.



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A NON-MIRING WAGON

Capacity, 10 tons. Adapted for hauling over sand, mud, bad roads or soft ground. Loose fit of track band minimizes wear on pins. Trussed track rigidly flat on ground at all times. More freight with less power. Will carry capacity loads wherever animals or tractors can work. Shipments from Chicago factory direct to you at any point. Information and prices on request.

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An Opportunity— to buy or sell a lease; get a better job; get the man you have been looking for—and many other opportunities are to be found in The Journal's Want Ads. Turn to the Want Page and read the whole page. Do it now—you may miss a bargain.

Detailed Operations in Western Fields for September, 1923

SUMMARIES OF ALL FIELDS

Wells Completed

Field—	Comp.	Prod.	Dry	Gas
Eastern	338	1,336	44	61
Central Ohio	56	331	20	28
Lima	71	1,416	3	2
Indiana	15	518	3	1
Kentucky	148	4,185	3	11
Tennessee	1	0	1	0
Mississippi	1	0	1	0
Alabama	0	0	0	0
Georgia	1	0	1	0
Illinois	16	194	9	2
Kansas	95	1,544	45	5
Oklahoma	420	68,201	151	46
North Central Texas	122	7,784	51	6
East Central Texas	127	331,020	4	0
Gulf Coast	101	38,564	32	6
North Louisiana	35	810	11	13
Arkansas	139	30,325	27	1
Wyoming	63	20 825	1	0
Montana	34	2,523	9	0
Utah	0	0	0	0
Total Sept.	1,783	509,586	416	182
Total Aug.	2,225	436,454	608	213
Difference	442	73,132	192	31

Rigs and Wells Drilling

Field—	Rigs	Drg.	Total
Eastern	162	380	542
Central Ohio	54	107	161
Lima	4	81	85
Indiana	1	34	35
Kentucky	1	265	266
Tennessee	0	21	21
Mississippi	0	19	19
Alabama	0	13	13
Georgia	0	2	2
Illinois	4	21	25
Kansas	48	131	179
Oklahoma	223	1,007	1,230
North Central Texas	51	218	269
East Central Texas	54	255	309
Gulf Coast	101	253	354
North Louisiana	24	79	103
Arkansas	88	149	237
Wyoming	110	417	527
Montana	24	192	216
Utah	0	24	24
Total Sept.	949	3,668	4,617
Total Aug.	1,062	3,935	4,997
Difference	113	267	380

Note—In the following report the Section, Township and Range are given first; then the farm, the owner, the serial number of the well and the initial production of the well. The rigs and drilling wells are set forth in a similar manner. In lines where the Section, Township and Range are missing the wells are located in the Sections, Townships and Ranges which appear next above in th ereport.

OKLAHOMA FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Washington	2	10	1	0
Nowata-Rogers	8	20	7	0
Osage	48	6,597	18	2
Tulsa	16	61	6	4
Okmulgee	28	690	16	2
Okfuskee, Hughes, Seminole and McIntosh	41	8,170	17	7
Muskogee-Wagoner	8	40	4	1
Creek	57	14,014	27	5
Pawnee	14	712	6	2
Payne	2	20	1	0
Kay	55	21,862	9	4
Garfield-Noble	39	8,180	5	1
Carter	33	4 377	4	2
Stephens-Cotton	25	268	12	5
Miscellaneous	44	3,180	18	11
Total Sept.	420	68,201	151	46
Total Aug.	563	83,521	199	45
Difference	143	15.320	48	1

Summary of New Operations

County—	Rigs	Drg.	Total
Washington	0	3	3
Nowata-Rogers	0	2	2
Osage	37	157	194
Tulsa	3	17	20
Okmulgee	22	60	82
Okfuskee, Hughes, Seminole and McIntosh	25	89	114
Muskogee-Wagoner	3	12	15
Creek	31	116	147
Pawnee	0	9	9
Payne	0	3	3
Kay	12	102	114
Garfield-Noble	41	114	155
Carter	13	107	120
Stephens-Cotton	3	33	36
Miscellaneous	33	183	216
Total Sept.	223	1,007	1,230
Total Aug.	243	1,133	1,376
Difference	20	126	146

WASHINGTON COUNTY

13-26-12 Bob, Delokee O. & G. 16.... 10
28-23-13 Howell, Swisher & Parris 1.. dry

Wells completed	2
Production	10
Dry	1
Gas	0
Gas production	0

NOWATA-ROGERS COUNTIES

11-23-15 Haven, H. F. White 1..... dry
16-23-15 Aiken, Madden & Madden 1... dry
35-24-15 Walkey, Henton & Weible 1... dry
7-22-17 Burris, M. C. Hall et al 1... dry
25-26-14 Buffington, J. W. Glass et al 1 20
32-24-17 Moore, J. G. Adams et al 2.. dry
22-26-15 Roberts, Frank Galloway 1.. dry
35-22-15 Laurey, Kennedy et al 4.... dry

Wells completed	8
Production	20
Dry	7
Gas	0
Gas production	0

OSAGE COUNTY

9-27-12 Evidence Oil 74..... dry
26-29-11 J. P. Tighe 11..... 5
30-25-10 Osage Development 217..... dry
16-24- 8 Marland et al 2..... dry
17-25- 9 Petroleum Drilling 2..... abd.
19-25- 9 New Eng. Oil & Pipe Line 8. dry
10-21- 9 Barnsdall Oil 5..... dry
16-26- 6 Carter Oil 5..... 510
Carter Oil 3..... 530
17-26- 6 Cosden Oil & Gas 11..... 200
23-27- 5 Skelly Oil 1..... 500
6-26- 6 Lorraine Pet. Co. 14..... 50
9-27-12 Owen-Osage Oil 247..... dry
31-20-11 Sand Springs Home 6..... 80
9-23-10 Waite Phillips 1..... dry
18-22-11 Finance Oil 5..... dry
5-21-11 McKinney & Winona 5..... dry
6-21-11 Waite Phillips 1..... dry
16-29-12 Superior Oil 2..... dry
34-24-11 Owen-Osage 248..... gas
28-24-10 Western American 6..... 40
33-24- 9 Walker Oil 3..... 20
1-23- 9 Peters 1..... abd.
16-26- 6 Carter & Tidal 5..... 500
36-27- 5 Roxana Petroleum 13..... abd.
15-27- 5 Waite Phillips Co. 6..... 1560
20-27- 6 Sinclair O. & G. 13..... 210
17-26- 6 Carter Oil 5..... 30
28-24-19 Winona Oil 6..... 70
34-25- 8 Indian Ter. Illum. 311..... gas
21-26- 9 New Eng. O. & P. L. 1..... dry
8-26- 6 Cosden Oil & Gas 6..... 20
35 27- 7 Waite Phillips 1..... dry
10-27-11 Owen-Osage 249..... dry
14-26- 8 Continental Pet. et al 1..... 140
11-25- 8 Continental Pet. et al 2..... 35
8-26- 6 Cosden Oil & Gas 9..... 100
35-27- 7 Waite Phillips 1..... dry
15-27- 5 Waite Phillips 2..... 472
15-27- 5 Sinclair Oil & Gas 6..... 490
15-27- 5 Waite Phillips Co. 2..... 150
19-27- 6 Sinclair Oil & Gas 15..... 250
8-22-11 L. Friedman 8..... 5
20-27- 6 Sinclair Oil & Gas 14..... 550
18-22-11 L. Friedman 8..... 6
16-21-12 J. J. Donohue 1..... 10
17-21-12 Kewanee O. & G. 1..... 19
15-20-11 Sand Springs Home 2..... 45

Wells completed	48
Production	6597
Dry	18
Gas	2
Gas production	12,500,000

TULSA COUNTY

4-17-14 Doyle, H. & S. Oil 1..... gas
6-19-12 Spring, Sand Springs Home 1 gas
16-18-13 Perkins, Vick Oil 7..... 5
32-18-13 Mullen, Posey-Short 3..... 20
15-16-12 Willis, Laurel Oil & Gas 1.. dry
21-16-12 Self, Sheridan Oil 2..... dry
35-19-11 Inchoe, Wood & Wharton 1... gas
35-19-13 Wray, Flesher Pet. 1-A..... dry
11-18-12 Smith, Prairie O. & G. 1-A.... 20
15-18-13 Prince, D. C. Lampton 1..... dry
8-16-13 Bertholf, Minemiller 1-A..... dry
28-19-14 Morgan Pennington 2..... gas
25-18-12 Parks, Tribes Oil 2..... dry
29-21-13 Turner, Corbin & Haver 3... 5
18-21-13 Todd, Swanson Bros. 7..... 6
29-21-13 Halsell, Halsell O. & G 8... 5

Wells completed	16
Production	61
Dry	6
Gas	4
Gas production	22,000,000

OKMULGEE COUNTY

18-15-12 Johnson, E. L. Robinson 1... 20
31-13-12 Unallotted, Spangler & Waxler 1..... 400
34-13-13 Johnson, Jess Rebold 4..... 20
33-14-11 Hance, Darby Pet. 1..... dry
15-13-14 Scott, Parent Pet. 10..... 20
7-13-12 Adams, Waite Phillips 3..... gas
27-12-12 Henry, Prairie O. & G. 1..... gas
34-12-12 Holmes, Steinmeyers 9..... dry
21-16-12 Self, Sheridan O. & G. 2..... dry
18-15-14 Hemory, Link Oil 1..... 20
4-15-12 Jones, Sheridan Oil 1..... dry
36-15-12 Byrd, Pioneer Oil 2..... dry
17-13-13 Grayson, W. C. Mee 3..... 15
24-14-12 Berryhill, Kessler & Smith 1. dry
4-14-10 Johnson, Wilcox O. & R. 4... 100
8-14-11 McIntosh, John Bott 1..... dry
24-15-13 Bruner, Klein 2..... dry
35-15-12 Rabbitt, Barbara Oil 1..... gas
36-13-11 Bruner, Gladys Belle Oil Co. 5 75
2-14-11 Adams, Preferred Oil 6..... dry
8-14-11 McIntosh, Netts & Whitmer 1 dry
13-14-11 Hance, Darby Oil 1..... dry
16-14-14 Colbert, Colbert, Oklana O. 6 dry
16-14-14 Lewis, Enterprise Oil 6..... dry
27-14-15 Smith, G. Hazlett 2..... dry
30-12-12 Randall, Mitchell O. & G. 9... 20
5-12-13 Bowman, Barbara Oil 1..... dry
18-12-13 Brown, Jilson et al 5..... dry

Wells completed	28
Production	690
Dry	16
Gas	2
Gas production	26,500,000

OKFUSKEE, HUGHES, SEMINOLE AND McINTOSH

3-12-15 Bray, Beggs Oil & Gas 2..... gas
8-12-11 Johnson, Waits Phillips 2.... dry
6-10-10 Wind, Lebow 1..... 80
9-13- 8 Harjo, Texas Co. 1..... 180
12-10- 9 Carolina, Skelly Oil 1..... 30
2-14- 6 Jackson, Union Tool & Sup. 1. 525
25-14- 7 Brown, Prairie O. & G. 1..... dry
33- 8- 8 Foster, Prod. & Ref. 3..... 3200
32- 8- 8 Long, Independent O. & G 1. 300
30-12-14 Edwards, Flesher Pet. 3..... gas
18-10-12 Bird Creek, Malcona Pet. 1... dry
20-13-11 Grayson, Ohiokla Oil 1..... 50
4-12-10 Hapwood, Cussack & Black Pet. 1 ..... dry
36-12-11 Hawkins, Independent O. & G. 1-A ..... dry
9-14- 9 Smith, Vierson et al 1..... dry
22-12-17 Love, Weible-Cline et al 1... dry
30-12-14 Edwards, Flesher Pet. 2..... dry
13-11-11 Holmes, Independent O. & G. 13 ..... gas
12-12-11 Buckley, N. Baltimore Oil 3.. 45
13-12-11 Sugar, N. Baltimore 5..... gas
29-10-10 Sulko, Transcontinental Oil 1. dry
11-10-11 Hill, Transcontinental Oil 1.. dry
6-12-12 Mitchell, Gladys Bell Oil 1.. 160
5-12-13 Bowman, Barbara Oil 2..... dry
12-12-13 Riddle, Daniels et al 3..... dry
19-11-10 Knight, Empire G. & F. 1.... gas
1-10-11 Thompson, Burton McClain 2.. 120
29- 9-10 Dunaway, Malcona Pet. 1..... dry
33- 8- 8 Foster, Prod. & Ref. 2..... 2800
29-12-10 Hall, Indep. O. & G. 1..... 40
29-12-14 Shepard, Flesher Pet. 1..... gas
6-10-10 Davis, Mutual Pet. 1..... dry
4- 9-10 King, Tidal Osage Oil 2..... dry
32- 9-10 King, Gladys Belle Oil 2.... dry
12-13- 7 Dyer, Bassett et al 2..... 180
23-13- 7 Harjo, Transcontinental Oil 2. dry
9-13- 8 Harjo, Texas Co. 1..... 300
13-11-11 Holmes, Indep. O. & G. 13.. gas
5-11-14 Nero, Potter Oil 7..... 40
9- 9-11 Holt, Tidal-Osage Oil 1..... 100
32- 8- 8 Parker, Mag. Pet. et al 1..... 20

Wells completed	41
Production	8170
Dry	17
Gas	7
Gas production	82,250,000

MUSKOGEE-WAGONER COUNTIES

34-18-16 Childers, O. S. Bentley 1..... 5
15-17-16 Verner, Atkins et al 2..... dry
25-17-16 White, Van Sicklin 1..... dry
27-14-15 Smith, Hazlett et al 2..... dry
21-16-14 Wilson, Mangler 2..... dry
7-14-16 Tucker, Simmons et al 4..... 30
18-14-17 James, Peterson 2..... gas
16-14-14 Colbert, Meisner 8..... 5

Wells completed	8
Production	40
Dry	4
Gas	1
Gas production	2,000,000

CREEK COUNTY

22-15-10 Sewell, Ellis et al 3..... dry
34-15-10 Rank, Wilcox Oil & Gas 1... 50
26-17- 8 Cobb, Waite Phillips 1..... dry
22-17- 9 Westland Oil 1..... 5
Walker, Cosden O. & G. 1... 20
23-18- 8 Waite Phillips 1..... gas
21-15- 8 Clouds, Tibbons 1..... dry
29-15- 8 Hicks, Prairie O. & G. 1.... 120
22-16- 8 Grayson Carter Oil 1..... dry
Peters 1..... 1000
Cane, Gypsy Oil 2400
24-16- 8 Hawkins, Roland Oil 1..... abd
4-16- 9 Renfro, Louis Abraham 1.... dry
33-16- 9 Shoals, Prairie O. & G. 6... 20
36-16- 9 Hamilton, Laurel O. & G. 1.. abd
14-14- 8 Prairie Oil & Gas 1..... 20
33-16- 7 Hiram Oil & Gas 1..... abd
22-16- 8 Grayson, Carter Oil 2..... 4512
15-19- 9 Unallotted, T. B. Slick 1.... dry
30-19- 9 Jefferson, Bailey et al 1..... 65
4-18- 7 Manuel, Carter Oil 38..... abd
35-16- 7 Foley, Hiram O. & G. 1..... dry
2-15- 9 Homer, Roland Oil 1..... dry
25-14- 7 Brown, Prairie O. & G. 1..... dry
4-14-10 Wright, Phillips Pet. 1..... dry
21-17- 8 Stidham, Transcontinental O. 1 gas
35-17- 8 Cobb, Waite Phillips 1..... dry
2-15- 8 Chapman, Roland Oil 4..... dry
5-15- 8 Fulsom, Carter Oil 3..... dry
8-15- 8 Wildcat, Gypsy Oil 3..... 400
Wilson Roxana Pet. 1..... 500
17-15- 8 Mitchell, Jomac Oil 2..... abd
31-15- 8 Jimm, Eastern Oil 1..... gas
29-18-10 Henry, Leo Oil 1..... 20
21-17- 8 Stidham, Transc. Oil 1..... gas
27-17- 8 Alex, Waite Phillips 1..... 2500
8-17-11 Freeman, Ireland et al 1..... 25
16-16- 9 McDermott, Carter Oil 5..... 125
27-16- 9 Sharper, Transcontinental 3... 10
5-15- 8 Roberts, Carter Oil 2..... 35
8-15- 8 Wildcat, Gypsy Oil 5..... 600
33-15-10 Harry, Lynch et al 2..... dry
35-17-10 Bucktrot, Wilson 1..... dry
5-16-10 Tiger, H. C. Wilson 1..... dry
10-17- 8 Watson, Waxler & Presler 1. dry
7-17- 9 Givens, Bu-Vi-Bar Pet. 1.... dry
19-17- 9 Bell, Riverside Ref. 1..... gas
16-16- 9 Barnes, Carter Oil 6..... 300
15-15-10 Clinton, Skelly Oil 3..... dry
28-18-11 George, Flannagan 2..... dry
30-19- 9 Jefferson Sapulpa Ref. et al 1. 30
9-15- 8 Beaver Eastern Oil 4..... dry
1-15- 9 Allen, Roland Oil et al 1.... 7
15-15- 8 Warnekee, Bran & Kline 1.. abd
17-15- 8 Yarhola, Pure Oil 5..... 500
3-14- 8 Kernal, Praire O. & G. 2.... 500
5-14-10 Johnson, Wilcox O. & G. 4.. 250

Wells completed	57
Production	14014
Dry	27
Gas	5
Gas production	30,500,000

PAWNEE COUNTY

25-21- 7 Herringford, McNemire & West 2 ..... dry
15-20- 6 Platt, Shaffer O. & R. 1..... 60
8-21- 6 Cole, Duquesne Oil 1..... 500
15-20- 6 Platt, Shaffer O. & R. 1..... 60
24-20- 8 Hamilton, Transc. Oil 2 2
27-20- 8 Clingworth, Atlantic O. P. 3 dry
18-21- 7 Kneeland, Sidwell Drg. 1..... dry
4-22-3e Diamond, Watchorn O. & G. 3 dry
13-20- 8 Whitehead, Mutual Oil 1..... dry
15-20- 6 Burton, Prairie O. & G. 5..... 40
15-20- 6 Reading, Rocheau 3..... 50
20-21- 6 Lesher, Magnolia Pet. 4..... gas
21-20- 6 Lesher, Gypsy Oil 3..... gas
17-20- 6 White, Watchorn Oil 2..... dry

Wells completed	14
Production	712
Dry	6
Gas	2
Gas production	8,000,000

PAYNE COUNTY

6-17- 4 Payne, Magnolia Pet. 2..... 2
2-18- 5 Turpin, Josey Oil 1..... dry

Wells completed	3
Production	2
Dry	1
Gas	0
Gas production	0

KAY COUNTY

34-25-1w Endicott, Comar Oil 7-B..... 75
Beverlin, Comar Oil 16..... 75
27-27-1e Johnson, Ballentine et al 1.. dry
16-27- 5 Jacques, Pure Oil 2..... 100
7-26-1e Magette, Eastern Oil 2..... gas
21-25-1w Allen, Jeep & Lewis 1..... dry
27-25-1w Suiter, McMan Oil 2..... 40
Suiter, McMan Oil 3..... gas
Davis, Texas Co. 2..... 50
34-25-1w Endicott, Comar 6-B..... 100
Beverlin, Comar Oil 11-A..... 100
Goltry, Amerada Pet. 2..... gas
Goltry, Amerada Pet. 31..... 500
35-25-1w Endicott, Comar Oil 5..... 120
36-25-1w Bills, Cosden O. & G. 1..... dry
20-27-1e Sole, Ballentine et al 2..... gas
28-27-1e Wildgumbe, Ballentine et al 2 gas
9-25-1w Dilla, Jeep & Lewis 1..... dry
27-25-1w Knostman, Texas Co. 6..... 620
34-25-1w Endicott, Pennok Oil 4-C..... 75
Endicott, Comar Oil 2..... 100
Endicott, Comar Oil 9-B..... 300
Beverlin, Comar Oil 8..... 150
Beverlin, Comar Oil 15-A..... 475
35-25-1w Endicott, Slick et al 2-D..... 225
Endicott, Comar Oil 6-A..... 40
Stewart, Carter Oil 6..... dry
Richter, Amerada Pet. 3..... dry
35-26-3w Vansand, Bullock et al 1..... dry
30-29-1e Hobaugh, O'Shaughnessy & Hahn 1 200
34-25-1w Woods, Amerada Pet. 10..... 150
Endicott, Pennok Oil 9-B..... 100
McKee, McCaskey & Wentz 39 125
McKee, McCaskey & Wentz 40 250
Endicott, Comar Oil 4-B..... 100
Endicott, Comar Oil 5-B..... 60
Endicott, Comar Oil 9-A..... 200
Beverlin, Comar Oil 11-B..... 100
Beverlin, Comar Oil 12-B..... 250
Beverlin, Comar Oil 13-B..... 50
Beverlin, Comar Oil 19..... 50
35-25-1w Endicott, Comar Oil 3-A..... 50
Endicott, Comar Oil 7-B..... 50
Endicott, Comar Oil 8-A..... 50
11-27-2w Kirkstetter, Laurel O. & G. 1 dry
4-27-5e Pappan, Roxana Pet. 1..... 1000
4-27- 5 Me To Hah, Laurel O. & G. 1 25
4-27- 5 Sand, Gypsy Oil 2..... 950
9-27- 5 Rhode, Phillips Pet. 3..... 2500
9-27- 5 Clubb, Phillips Pet. 1..... 1500
10-27- 5 Sand, Cosden O. & G. 4..... 1700
30-29- 1 Hobaugh, O'Shaughnessy et al 1 50
11-27-2w Kaney, Otstot Dev. Co. 1..... dry
9-27- 5 Boardman, Comar Oil Co. 2..... 50

Wells completed	55
Production	21862
Dry	9
Gas	4
Gas production	18,750,000

GARFIELD-NOBLE COUNTIES

2-24-1w Clark, Gypsy Oil 54..... 400
Gaume, Comar Oil 5..... 150
Blubaugh, Comar Oil 6..... gas
3-24-1w Carmichael, Comar Oil 16-A. 250
Carmichael, Comar Oil 19-A. 50
19-22-3w Crews, Sinclair O. & G. 10... 225
Crews, Crews Heirs Est. 12.. 50
29-21-1w Raynor, Twin State Oil 1..... 75
25-22-4w Windler, Sinclair O. & G. 10. 175
2 24-1w Clark, Gypsy Oil 55..... 1000
Clark, Gypsy Oil 58..... 1000
Clark, Gypsy Oil 66..... 600
Blubaugh, Comar Oil 14-B .. 450
3-24-1w Carmichael, Comar Oil 1-B.. 100
Carmichael, Comar Oil 17..... 50
Ruzek, Comar Oil 10-A..... 50
25-23-4w Gibson, Grogan Drg. 1..... abd
17-21-3e Morrison, Colo. O. & G 1..... dry
2-24-1w Gaume Comar Oil 10-A..... 100
Blubaugh, Comar Oil 12..... 450
3-24-1w Ruzek, Comar Oil 10-A..... 50
Ruzek, Comar Oil 12..... 50
Carmichael, Comar Oil 10-A. 250
Carmichael, Comar Oil 20.. 250
10-24-1w Novotony, Prairie O. & G. 3-B 125
16-24-1w School Land, Marland-Cosden 4 dry
29-12-3w Crews Estate, Crews 13..... 25
2-24-1w Clark, Gypsy Oil 42..... 350
Clark, Gypsy Oil 56..... 350
Blubaugh, Comar Oil 9..... 350
3-24-1w Ruzek, Comar Oil 10-B..... 100
Ruzek, Comar Oil 11-B..... 275
Carmichael, Comar Oil 15.. 75
Carmichael, Comar Oil 20-A. 100
11-24-1w Rence, Healdton O. & G 6-B. 175
Rence, Healdton O. & G. 10-A 250
13-24-1w Selvery, Magnolia Pet. 1..... dry
22-22-4w Meisner, Triangle Oil 1..... dry
25-22-4w Windler, Sinclair O. & G. 10.. 500

Wells completed	18
Production	8150
Dry	1
Gas	1
Gas production	12,500,000

CARTER COUNTY

30-2s-2w Ellis, Cotton Belt Pet. 2..... 125
31-2s-2w Bennett, Magnolia Pet. 6..... 50
Bennett, Merrick & Kirk 8.. 400
32-2s-2w Palmer, Schermerhorn 6..... 100
25-2s-3w Jefferson, Twin Sts. Oil 1.... 200
Wolfe, Southwestern 3..... 200
Wolfe, Southwestern 4..... 175
Laymen, Atl. Oil Pro. 1..... 450
Laymen, Magnolia Pet. 1..... 200
9-4s-2w Walker, Humble O. & R. 10... 200
10-4s-2w Walker, B. A. Simpson 1..... 450
15-4s-2w Woodruff, Magnolia Pet. 21.. 300
Woodruff, Magnolia Pet. 26... dry
Woodruff, Carter Oil 37..... 150
21-4s-2w Noble, Carter Oil 37..... 100
22-4s-2w Dillard, Wolverine Oil 109... 100
31-2s-2w Bennett, Magnolia Pet. 5..... 50
Bennett, Westheimer 1..... 50
12-2s-3w Keaton, Pure Oil 1..... 100
6-3s-2w Dalman, McMann Oil 1..... 125

16-4s-2w Kalish, Westheimer & Daube 14 300
15-4s-2w Woodruff, Carter Oil 32..... 75
22-4s-2w Dillard, Wolverine Oil 51..... 50
Dillard, Wolverine Oil 61..... 300
23-3s-3w Luce, Sturn et al 1..... dry
31-2s-3w Bennett, Magnolia Pet. 8..... 100
30-2s-2w Sparks, Schermerhorn 2..... 250
15-4s-2w Woodruff, Carter Oil 32..... 200
10-4s-1w Perry, Carter Oil 1..... dry
25-2s-3w Holman, Schermerhorn 2..... gas
27-2s-3w Hefner, Magnolia Pet. 10..... 10
22-4s-2w Carr, Magnolia Pet. 9..... 15
16-5s-1w Smith, Felmlee Dev. Co. 1.... dry

Wells completed 32
Production 4377
Dry 4
Gas 2
Gas production 51,000,000

STEPHENS-COTTON COUNTIES

11-1n-5w Simpson, Zook-Barnes 1..... 10
23-2s-6w Farris, Magnolia Pet. 5..... dry
Farris, Magnolia Pet. 6..... 100
25-2s-6w Chandler, Magnolia Pet. 2.... dry
26-2s-6w James, Magnolia Pet. 1..... gas
23-1n-9w Brown, Magnolia Pet. 3..... gas
25-1n-9w Harris, Magnolia Pet. 3-A.... dry
30-2n-8w Roush, Fred Drake 1..... dry
30-1n-8w Hardin, Carter Oil 6..... gas
33-1s-8w Surber, McMann 14..... 20
20-2s-7w Thurlow, Caldwell et al 1..... dry
Townsite, Starr et al 1..... dry
10-1s-9w Shaffer, Magnolia Pet. 1..... dry
18-1s-8w Johnson, Magnolia Pet. 3..... 10
1-1n-5w Shortess, Amerada Pet 1..... dry
15-1s-8w Cates, Priddy 2 ..... dry
34-1s-8w Kagay, Magnolia Pet. 14..... dry
1-2s-5w Wilson, Magnolia Pet. 13..... 5
14-2s-5w Floyd, Magnolia Pet. 3..... gas
20-1s-8w Bartley, Magnolia Pet. 5.... 95
23-1n-9w Bolton, McMann 2..... 20
2-2s-8w Houston, Pace Bros. 2..... dry
23-1n-9w Brennan, Glenhoma Oil Co. 3.. gas
1-2s-5w Dickens, Midget Oil 8..... 8
12-2s-8w Wilson, Pace Bros. 3..... dry

Wells completed 25
Production 268
Dry 12
Gas 5
Gas production 42,000,000

MISCELLANEOUS

Garvin County—
10-1n-5w Gibson, T. & P. C. & O. 1.... 30
13-1n-3w Newberry, Judson Oil 2..... gas
14-1n-3w Powell, Humble O. & R. 4..... dry
Newberry, Pauline Oil 1..... dry
Jones, Magnolia Pet. 9..... 15
Shirley, T. P. C. & O. 3..... gas
13-1n-3w Mays-Newberry, Mag. 3..... gas
14-1n-3w Newberry, Davis & Younger 2-A ..... abd
23-1n-3w Freeman, American Con. 1.. abd
24-2n-1w Van Horn, Nicholson Bros. 1.. dry
9-1n-3w Gann, T. & P. C. & O. 1.... 40
10-1n-3w Cowan-Gibson, Mag. Pet. 2.... 30
24-1n-3w Stephenson, Weaver, Reynolds 1 ..... dry
10-1n-3w Freeman-Gibson Mag. Pet. 2. 50
9-1n-3w Gann, T. & P. C. & O. 2..... 40
McClain County—
35-5n-1e Thomas, Rosedale Oil 1..... dry
15-8n-4w Stover, English Drg. Co. 1.. dry
Caddo County—
3- 5-3w Rightway, Acme Dev. Co. 1.. 10
Pontotoc County—
16-4n-6e McDaniel, Canadian Pet. 1.... dry
21-3n-4e Fulton, Dobie et al 1..... dry
Grady County—
11-4n-8w Smith, Magnolia Pet. 1..... gas
31-5n-5w Houston, Ship & Nash 1..... 40
4- 5-8w Rider, Watts & Strube 1..... dry
14-4n-8w Cox, Twin States Oil 1..... gas
35-5n-8w Trammell, Stagner 1..... gas
25- 5-8w Reed, Nichols Drg. Co. 1..... gas
23- 4-8w Keirns, Magnolia Pet. 1..... 10
26- 5-8w Smith, Briscoe et al 1..... gas
31- 4-5w Hudson, Ship & Nash 1..... 15
16-2n-6w Staten, Concord Oil 1..... dry
Beckham County—
6-5n-26w Shamrock, Curtis 1 ..... dry
14-9n-23w Gray, Magnolia Pet. 1..... gas
15-9n-23w Gray, Carter Oil 1..... 400
22-9n-23w Joyce Barker Oil 1..... gas
31- 9-23w Wendle, Carter Oil 1.....1440
Wendle, Empire G. & F. 1.. 450
7-9n-23w Trissell, Emerald Oil 1..... dry
Kingfisher County—
4-17-5w Sore, Casing Royalty Co. 1.. dry
Johnson County—
29-3s-4e Bean, Co-Op. O. & G. 1..... dry
Lincoln County—
13-14- 5 Kalka, Pure O. & Magnolia 1. gas
2-14- 6 Union Pet. et al 1..... 500
Coal County—
9- 2- 9 Benton, Galbreath et al 1... dry
Grant County—
15-27-3w Howell, West. States 1..... 110
35-26-3w Danford, Lynch & Clements 1 dry

Wells completed 44
Production 3180
Dry 18
Gas 11
Gas production 87,500,000

OSAGE COUNTY

Rigs

28-20-12 Riverland Co. 2.
27-22-10 Tidal Osage 16.
7-26-11 New England Oil 1.
28-24-10 Peters Oil 2.
24-26-11 Phillips Pet. 6.
24-26-11 Devonian Oil 8.
30-29- 9 Winona Oil 3.
26-26- 8 Connell Pet. 1.
23-24- 8 Tidal Osage 7.
26-24- 9 Marland Ref. 8.
Tidal & Comar 3.
17-25- 9 Foster et al 7.
1-22- 9 Atlantic O. P. 5-A.
13-22- 8 Peters Oil 29.
31-23- 8 Pennok Oil 1.
10-21- 9 Penn Osage Oil 7.
17-29- 6 Phillips Pet. 5.
4-26- 6 Tidal Osage 10.
6-26- 6 Lorraine Pet. 16.
16-26- 6 Producers & Refiners 13.
35-23- 7 Gypsy Oil 10, 11.
1-26- 6 I. D. Simons 7, 13.
10-27- 5 Gypsy Oil 2.
Comar Oil 4.
Phillips-Deimar 1, 4, 5.
15-27- 5 Waite Phillips 13, 14, 15, 16.
23-27- 6 Skelly Oil 16.
25-27- 5 Phillips-Skelly 2, 8.
36-27- 5 Roxana Pet. 4.
20-25- 3 Twin State Oil 1.
15-27- 5 Sinclair O. & G. 10, 11.

Wells Drilling

8-22-12 LaBodo et al 2.
30-23-12 Indian Terr. Ill. 173.
1-22-10 Riverland Pet. 1-A.
11-22-10 Gilliland Oil 4.
8-23-10 Adlum et al 1.
14-23-10 Cosden O. & G. 1.
9-22-11 Owen Osage Oil 244.
7-20-10 W. J. Atkins 1.
10-20-11 Sand Springs Home 3.
4-21-11 C. W. Titus 4.
17-29-12 Owen Osage 246.
29-29-12 Owen Osage 245.
31-29-12 Jennings 1.
30-24-11 Homaokla Oil 7.
34-24-11 Owen Osage 250.
32-24- 8 Mutual O. & G. 15.
17-24- 9 Number One Oil 6.
32-24- 9 Plains Petroleum 2.
34-25- 8 Indian Terr. Ill. 307.
17-25- 9 Petroleum Drilling 3.
13-22- 8 W. D. Gray 3.
29-22- 8 Thompson, Black et al 1.
7-22- 9 Meridian Pet. 1.
18-22- 9 Meridian Pet. 5.
20-23- 8 Marland Ref. 2.
29-23- 8 Red Bank Oil 2.
34-23- 8 Riverland 4.
4-23- 9 C. B. Peters 11.
28-23- 9 Tidal Osage 1.
11-21- 9 Devonian & Moore 2.
21-28- 7 Comar Oil 1.
6-26- 6 Lorraine Pet. 15.
16-26- 6 Producers & Refiners 12.
17-26- 6 Carter & Tidal 5, 6.
Oliphant et al 1.
19 27- 6 Phillips-Skelly 13.
Gypsy Oil 6.
Sinclair O. & G. 13, 14, 15.
20-27- 6 Sinclair O. & G. 15, 16.
26-23- 7 Plymouth & Miller 1.
10-27- 5 Phillips-Deimar 3.
15-27- 5 Waite Phillips 9.
23-27- 5 Phillips Pet. 5.
36-27- 5 Twin State 8.

Shut Down

34-22-12 Andes O. & G. 1.
28-20-12 Riverland 1.
Westland 3.
17-21-12 Kewanee O. & G. 1.
2-22-10 Riverland 6.
11-22-10 Gilliland Oil 3.
26-23-10 Rex Pyramid 7.
34-23-10 Waite Phillips 1.
18-22-11 L. Friedman 10.
28-22-11 Branstetter 1.
17-23-11 Halnerman-Marshall 6.
4-20-11 Wortham & Reilly 1.
8-20-10 Mosney, Smith et al 2.
31-20-11 Sand Springs Home 7.
23-21-10 Tidal Osage & Titus 1.
Breen et al 1-A.
6-21-11 C. W. Titus 3.
34-25-11 Devonian Oil 7.
28-24- 8 Osage O. & R. 1.
25-24- 9 Winona Oil 2.
27-25- 8 Atlantic O. P. 2.
28-25- 8 E. B. Lawson 5.
36-22- 8 Sand Springs Home 74.
8-22- 9 Atlantic O. P. 2.
3-23- 8 Superior Oil 1.
13-23- 8 Twin State 5.
20-26- 6 Phillips Pet. 1.
3-26- 6 Kay County Gas 1.
6-26- 6 Tidal Osage 15.
8-26- 6 Cosden O. & G. 8.
19-27- 6 Phillips Skelly 13.
Gypsy 10, 13, 14.
29-27- 6 Phillips Skelly 8.
31-25- 7 Vickers & Higgens 1.
32-28- 5 Waite Phillips 1.
1-26- 5 I. D. Simon 14.
10-27- 5 Cosden O. & G. 7.
Phillips-Deimar 1.
15-27- 5 Waite Phillips 5, 7, 8, 10.
22-27- 5 Carter Oil 5, 6, 8, 9, 10, 13, 14, 15, 16.
23-27- 5 Skelly-Phillips 3, 6, 7, 11.
Skelly Oil 2, 3, 5, 6, 7, 8, 13, 14, 15.
Phillips 2, 3, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16.
Gypsy 6, 9, 10, 11, 12, 13, 14, 15, 16.
24-27- 5 Phillips-Skelly 9, 10, 11, 12, 14.
Gypsy Oil 13, 14, 16.
26-27- 5 Philips-Skelly 6, 3, 7, 9, 10, 11.
Phillips-Skelly 1, 2, 5, 6, 9, 10, 13, 14.
35-27- 5 Phillips Pet. 6, 7, 12.
Waite Phillips 9, 12.
15-27- 5 Sinclair O. & G. 3, 5, 7, 8, 9, 12.
19-27- 6 Sinclair O. & G. 11.
Rigs, 37; wells drilling, 157; total 194.

TULSA COUNTY

Rigs

1-18-12 Edwards. West et al 11.
22-19-10 Unallotted, Jones & Burton.
17-16-13 Brown, McCullough et al 1.

Wells Drilling

1-18-12 River Bed, Tidal Oil 1-A.
3-18-12 Vance, S. E. Vance 1-A.
7-16-12 Miller, Campbell et al 1.
5-16-13 Bertholf, Thompson & Black 1.

Shut Down

5-19-14 Childer, John Holt 1.
28-19-14 Morgan, Pennington 3.
29-19-14 McIntosh, Boyd et al 1.
20-17-14 Steel, Noble O. & G. 1.
30-17-14 Depriest, McCullough et al 1.
36-17-14 Secrest, Valley Oil 1.
34-19-12 Vannest, Fessler-Church et al 1-A.
19-17-13 Coolidge, Pawhuska O. & G. 2.
13-18-12 Olin, Associated P. & R. 6.
Corbray, Smith et al 4.
2-18-12 Hewlett, Thompson & Black 1.
6-18-13 Sango, Hancock et al 1.
33-18-13 Teague. Houston et al 2.
27-19-11 Gaylord, Minshall Oil 3.
Rigs, 3; wells drilling, 17; total, 20.

OKMULGEE COUNTY

Rigs

2-15-14 Anderson, W. R. Somerville 6.
31-15-14 Charles, Wallace et al 3.
28-13-14 Doyle, Meridan Oil 2.
29-13-14 Wiley, Frank Havel 2-A.
17-13-15 Atkins, Purdy & Rebold 1.
8-14-14 Harris, Ohiokla Oil 1.
23-14-14 Corbray, Argue & Brockway 6.
6-14-15 Hazlett, Link Oil 9.
8-13-12 Morton, Logan & Wallace 4.
22-13-12 McIntosh, Clark et al 8.
16-14-12 Corbray, Knott & Potter 1.
6-12-12 Davis, L. F. McCrae 1.
34-12-12 Holmes, Eagle Picher 6.
25-12-13 Bird, Kingwood Oil 2.
9-15-11 Brandt, Indiahoma O. & R. 7.
10-15-11 Cooper, Beggs O. & G. 13.
11-15-11 Adams, Cosden O. & G. 3.
23-15-11 Hill, Frank Moore et al 2.
22-16-12 Wills, Sheridan Oil 3.
24-16-12 Tiger, Oklahoma Natural 7.
27-16-12 Coleman, Independent O. & G. 4.
30-16-13 Tiger, Enfisco Oil 6.

Wells Drilling

25-15-14 Sells, H. E. Jones 3.
31-15-14 Chapman, Richardson et al 8.
25-13-14 W. E. Reynolds 1.
14-13-15 McNac, Biggs & Evans 2.
17-13-15 Johnson, Prairie O. & G. 1.
28-13-15 Fulton, J. N. Bynum 1.
2-13-13 Davis, E. R. Black 1.
16-13-13 Smith, Vierson & Walters 3.
23-13-13 Morton, Jordan & Ashley 2.
26-13-13 Asbery, Mutual Oil 3.
2-14-13 Harris, D. C. Lampton 4.
3-11-12 Barnett, W. B. Pine 5.
18-11-12 Fish. Wiser Oil 1.
11-11-13 Bruner, King et al 1.
6-12-12 Mitchell Frank King et al 2, 3.
15-12-13 Bruner, Diamond Oil 10.
18-12-13 Brown, Jilson et al 5.
33-12-13 McDaniels, Waite Phillips 1.
23-15-11 Hill, Jennings Bros. 2.
33-15-11 McIntosh, Shelton 3.
33-16-12 Friday, Sam Bright 1.
13-16-13 Hayden, Stewart & McCullough 1.

Shut Down

33-15-14 Monday, Johnson & Cunningham 6
36-15-13 Sampson, Southwest Oil Fields 5.
13-15-12 Minugh, Hickins & Wilson 1.
22-15-12 Shepard, Sheridan Oil 1.
33-15-12 Jackson, Southwestern Pet. 2.
32-14-15 Carter, Bandy et al 2.
23-13-14 Scott, Frank Sheely 6.
24-13-14 Thornberry, Iron Mountain 5.
16-14-14 Colbert. L. J. Hutchinson 1.
35-14-14 Anderson, Wooster Oil 3.
36-14-14 Smith, Enterprise Oil 5.
19-14-15 Rentie, Ohiokla et al 3.
31-13-13 Holleman, E. F. Alden 1.
3-14-12 Norris, Claypool et al 2.
19-14-13 Berryhill, Kessler 1.
3-11-12 Calloway, Sivalls et al 1.
5-11-12 Hawkins, E. R. Black et al 1.
6-11-12 Hawkins, Moffett & Slick 7.
21-11-12 Furr, Moffett et al 2.
36-11-12 King, G. F. Haun 1.
36-11-13 Thompson, Simplex Oil 1.
1-12-12 Monday, Parshall Oil 1.
27-12-12 Wolfe, Vanderwide et al 1.
33-12-12 Haggerty, Stinson & Mathews 6.
6-12-13 Holleman, Smith & King 4.
15-12-13 Bruner, Diamond Oil 7.
19-12-13 Burgess, Bland et al 3.
17-15-11 Carolina, Cole et al 1.
22-15-11 Richards McBain et al 7.
23-15- 11 Hill, Oklavaina Oil 1.
28-15-11 Johnson, Sheridan Oil 1.
22-16-12 Wills, Pulaski Oil 1.
Wills, Sheridan Oil 4.
24-16-12 Tiger, Oklahoma Natural 6.
27-16-12 Coleman, Independent O. & G. 3.
Coleman, Margay Oil 1.
Rigs, 22; wells drilling, 60; total, 82.

WASHINGTON COUNTY

Wells Drilling

30-26-13 McDonald, Scofield O. & G. 2.
20-26-13 Hildebrandt, Keystone O. & G. 23.
33-26-13 Jones, J. C. Gambill 3.
Rigs, 0; wells drilling, 3; total, 3.

OKFUSKEE, HUGHES, SEMINOLE AND McINTOSH COUNTIES

Rigs

16-12-17 Keys, J. C. Welble et al 1.
2-12-14 King. Barlow et al 1.
19-12-14 Barnett, Flesher Pet. 2.
14-13-11 Thompson, Ohiokla 1.
28-13-11 Richards, O. F. Dickinson 1.
29-13-11 Hawkins, Kimbley O. & R. 4.
22-11-11 Holmes, Deaner & Jamison 6.
1-12-11 Thompson, McClaim & Indp. 3.
36-13-11 Turner, Gladys Belle & Sands 6.
27-12-11 Holmes, Hartman 2.
4- 9-11 Baker, Tidal Osage 1.
29-10-11 Cubbee, Fisher & Umbree 1.
4-13- 8 Saryokiche, Iron Mountain 1.
Colbert, Skelly Oil 1.
27-11- 8 Sands, Burke & Greis 1.
28- 8- 8 Foster, Davis & Sloan 1.
Foster, R. H. Smith 1.
31- 8- 8 Willis, W. R. Ramsey 1.
32- 8- 8 Foster, R. H. Smith 3.
Long, R. H. Smith 2.
33- 8- 8 Foster, Pro. & Ref. 5, 6.
Long, R. H. Smith 1.
13- 7- 8 Dean, W. R. Ramsey 1.
13- 9- 7 Williams, Indep. O. & G. 1.
33- 6- 6 Charty, Harvey & Maxwell 1.

Wells Drilling

2-12-16 Vorenblood, Montague Oil 1.
17-11-14 Cumberledge, Wooster Oil 4.
20-12-14 Hawkins, McInturf et al 2.
8- 9-12 Smith, Flesher Pet. 1.
36-10-12 Unallotted, Carter Oil 1.
23-13-11 Tobler, Waite Phillips & Gypsy 3.
13-11-11 Jefferson, Waite Philips 5.
15-11-11 Tucker, Deaner & Edgar 1.
30-12-10 Harjack, Blakeley et al 1.
36-12-10 Brooks, Blakeley et al 1.
1-12-11 Thompson, H. G. Fair 2.
22-12-11 Barnett, Hartman et al 6.
27-12-11 Holmes, Hartman 2.
9- 9-11 Bruner. Tidal Osage 1.
26-10-11 Harjo, Prairie & Kingwood 1.
7- 7-10 Barnett, Kingwood Oil 1.
23- 8-10 Alexander, Indep. O. & G. 1.
9-13- 8 Riley, Gypsy Oil 1.
26-13- 9 Hardridge, Howarth 1.
26-11- 8 Tiger, Gardner Pet. 1.
18-11- 9 Holahta, Link Oil 1.
20-12- 9 Yahola, Howarth Oil 1.
25-12- 9 Callahan, C. W. Wangerine 1.
15- 9- 8 Ahaise, Indep. O. & G. 1.
28- 9- 8 Davis, Waite Phillips 1.
20- 9- 9 Bruner, Gilcrease Oil 1.
15-10- 8 Bruner, Cromwell et al 1.
33-10- 9 Johnson, J. E. Dow 1.
6- 7- 8 Dindy, W. R. Ramsey 1.
14- 7- 8 Narcome, Prod. & Ref. 2.
19- 8- 8 Townsite, W. R. Ramsey 1.
28- 8- 8 Foster, Freeman & Crosby 1.
29- 8- 8 Walker, Indep. O. & G. 1.
32- 8- 8 Foster. R. H. Smith 2.
Parker, R. H. Smith 1.
Parker, Magnolia Pet. 1.
33- 8- 8 Foster, R. H. Smith 2.
Long, Lewis & Clark 1.
Foster, Indep. O. & G. 1.
10- 8- 7 Davis, Ossenbeck et al 1.
25- 6- 6 Mingo, Maxwell & Kawfield 1.
14- 6- 7 Carolina, Link Oil 1.
20- 6- 7 Dundy, Wm. McDougall 1.

Shut Down

19-12-14 Bird, Fred Phillips 3.
20-12- 4 Tucker, Casper et al 1.
27-12-14 Smith, Parent Pet. Co. 1.
29-12-14 Shepard, Flesher Pet. 3.
3-12-15 Bray, Beggs Oil & Gas 1.
29-12-15 McNally, Clifton & Terrell 1.
26-13-11 Murrell, E. R. Black 2.
30-13-11 Cross, Cosden Oil & Gas 5.
31-13-11 Holahita, Denver P. & R. 7.
32-12-11 Thomsa, Ohiokla Oil 1, 2.
2-14-11 Adams, Preferred Oil 6.
4-14-11 Lunsford, Noble Oil & Gas 1.
7-14-11 Jefferson, Stoffey Bros. 1.
4-11-11 Morrow, Anglo-Texas 1.
12-11-11 Fish, Wooster Oil 2.
24-11-11 Fields, Phillips Pet. 14.
32-11-11 Holmes, Burke & Greish 1.
1-12-11 Thompson, H. C. Fair 3.
3-12-11 Grayson, Parshall Oil 2.
28-12-11 Robinson, Anglo-Texas 1.
29-12-11 Stubblefield, Anglo-Texas 1.
32- 9-10 King, Vierson et al 2.
4- 9-11 Byrd, Magnolia Pet. 1.
9- 9-11 Bruner, Mid-Kansas Oil & Gas 2.
9-10-10 Lindsay, Gilcrease Oil 1.
28-10-11 Reed, Fisher & Umbree 1.
2-13- 9 Chessoe, Lippa & LeBosquet 1.
1-11- 8 Field, Howarth et al 1.
30-11- 8 Unallotted, Foster 1.
17-12- 8 Johnson, Howarth Oil 1.
26-12- 8 Beaver, Howarth Oil 1.
4- 9- 9 Simon, Papcose Oil 1.
21-10- 8 Harjo, Holm & Jarvis 1.
12-10- 9 Foster, Independent Oil & Gas 1.
5- 7- 8 Foster, W. H. Thurbier 1.
33- 8- 8 Parker, Magnolia Pet. 1.
34- 9- 6 Jones, H. H. Taylor 1.
23- 7- 7 Carolina, R. H. Smith et al 1.
4- 5-11 S. J. Mathews 1.
13- 6-11 Middle States Oil 1.
Rigs, 25; wells drilling, 89; total, 114.

MUSKOGEE-WAGONER COUNTIES

Rigs

20-13-16 Willingham, Egolf Oil 1.
36-13-17 Arnett. Douglas & Haller 1.
3-16-15 Unallotted, O. N. West 2.

Wells Drilling

24-14-16 Tipton, Roxiline Pet. 3.
18-14-17 James, W. A. Peterson 6.
4-15-15 McDaniels, W. M. Harsha 2.
29-15-15 Vanderslice, Bradley et al 4.
18-17-15 Wheat, Stone Bluff Synd. 1.
27-18-15 Bird, M. A. Wilder 1.

Shut Down

6-13-16 Callahan, McCutcheon 2.
35-14-16 Luster, J. A. DeWitte 1.
32-14-17 Buffington, E. C. Lantz 1.
[illegible]-14-15 Walker, Armstrong 3.
27-15-15 Charles, Turin Oil 4.
23-14-15 Walker, Crabtree & Simmons 1.
Rigs, 3; wells drilling, 12; total, 15.

CREEK COUNTY

Rigs

7-19- 8 Griffin, Malcona Oil 1-A.
15-19- 9 Smith, T. B. Slick 2.
Unallotted, F. Howarth 2.
Smith, Shaffer O. & R. 2.
18-18- 9 Jones, Eva Bell 3.
29-18- 9 Scales, Peters & McClung 2, 3.
29-18-10 Mitchell, Sapulpa Ref. 2.
32-18-11 Drew, Cross et al 6.
7-17- 8 Island, Flesher Pet. 1.
22-17- 8 Mitchell, Transcontinental 1.
23-17- 8 Walker, Duquesne 2.
32-17- 8 Washington, Oklahoma P. & R. 1.
36-17- 8 Farres, W. L. Clark et al 3.
22-16- 8 Wilson, Peters Oil Corp. 2.
23-16- 8 Deere, Lorraine Pet. 11.
32-16- 8 McKinney, Prairie O. & G. 1.
10-16- 9 Field, Wolfe O. & G. 2.
16-16- 9 McDermott, Carter Oil 4.
Pike, F. Moore 1.
20-16- 9 Barnett, Dickson et al 1.
23-16- 9 Bassett, Prairie O. & G. 3.
25-16- 9 Barnett, Blackwell O. & G. 2.
35-16- 9 Homer, W. E. Brown 2.
32-16-10 Bemoure, Phillips Pet. 3.
12-16-11 McGilbray, Shaffer O. & R. 1.
7-16-12 Miller, Campbell et al 1.
1-15- 7 Thomsa, Hiram Wilson 1.
9-15- 8 Weaver, F. A. Chapman 2.
Jackson, Skelly Oil 1.
15-15- 8 Warnakee, Bran & Kline 3.
21-15- 8 Marshall, Tibbens 1.
23-15- 8 Peters, Bu-Vi-Bar Oil 1.
23-15-10 McIntosh, Cumberland Pet. 4.
34-15-10 Sewell, Sapulpa Ref. 2.
13-14- 8 Bearhead, Prairie Oil & Gas 1.
26-14- 8 Johnson, C. G. Tibbens 6.

Wells Drilling

15-19- 9 Morgan, Mattox et al 1.
Smith, Shaffer O. & G. 1.
30-19- 9 Jefferson, Bailey et al 1
5-18- 7 Atkins, Charles Page 24.
8-18- 7 Musselman, Magnolia Pet. 7.
36-18- 7 Jones, Magnolia Pet. 1, 3.
23-18- 8 Deer, Sidwell Drilling 1.
17-18- 9 Atkins, Eva Bell 2.
4-18-10 Johnson, Smith Oil Corp. 1.
24-17- 7 Micco, Transcontinental 1.
23-17- 8 Grayson, W. Phillips 1.
26-17- 8 Annie, Transcontinental 1.
32-17- 8 Washington, Texolean 4.
33-17- 8 Hawkins, Wilcox & Oswalt 1.
32-17- 8 Alex, Sartain Bros. 1-A.
36-17- 8 Emartha, W. Phillips 4.
21-17- 9 Snapp, Wood & Farren 1.
28-17-11 Wilson, McClung et al 1.
9-16- 8 Myers, Red Bank 6.
21-16- 8 Major, Tidal Osage 2.
Williams, Hiram Wilson 1.
22-16- 8 Wilson, Cortez 2, 3.
23-16- 8 Deere, Lorraine Pet. 10.
27-16- 8 Harriott, Ryan Consol. 1.
Beaver, Red Bank 1.
34-16- 8 Larnie, Maitland O. & G. 1.
6-16- 9 Unallotted, Prairie 1.
16-16- 9 Williams, Hammett et al 4.
17-16- 9 Grayson, Jackson & Wise 1.
20-16- 9 Cobb, Calvin et al 1.
27-16- 9 Sharper, Transcontinental 4.
35-16- 9 Charles, The Texas Co. 7.
5-16-10 Tiger, Hiram Oil 1.
1-15- 7 Thomsa, Hiram Wilson 1.

11-15- 7 Cobb, Eastern Oil 1.
2-15- 8 Cat, Carter Oil 3.
Bear, Barnsdall & McMahon 3.
6-15- 8 Kayl, Barker & Johndahl 1.
8-15- 8 Wilson, Roxana Pet. 3, 4.
Robertson, Hiram Oil 6.
9-15- 8 Weaver, F. A. Chapman 1.
15-15- 8 Warnakee, Cosden Oil & Gas 1.
16-15- 8 Fish, Eastern Oil 1.
Unallotted, Gypsy Oil 2.
17-15- 8 Yarhola, Pure Oil 6, 7.
Unallotted, Prairie Oil & Gas 1.
20-15- 8 Wasson, Eastern Oil 1.
30-15- 8 Marshall, W. Phillips 1.
4-15- 9 Wisner, Phillips Pet. 3.
5-15- 9 Tiger, Johnson et al 2.
9-15-10 Grayson, Kawfield Oil 8.
29-15-10 McIntosh, W. Phillips 2.
McIntosh, Bristow Prod. 3.
29-15-10 McIntosh, Skelly Oil 2.
McIntosh, Crosby et al 1.
34-15-10 Sewell, Cosden Oil & Gas 1.
30-14- 8 Jackson, Roxana Pet. 2.
Kernell, Waite Phillips 1.
Kernell, Oklahoma P. & R. 1.
McGilbray, Sinclair O. & G. 1.
3-14-10 London, Tom Kelly 1.
22-14-10 McIntosh, Donnelly et al 1.

Shut Down

2-19- 7 Sarty, McCray et al 1.
11-19- 8 Bruner, Bartlett et al 1.
35-18- 8 Harjo, J. F. Quinn 1.
17-18- 9 King, Bartlett et al 4.
34-18- 9 Larney, Drake Oil 1.
23-18-11 George, Flannagan & Hennige 1.
6-17- 9 Johnson, Malcona Pet. 10.
31-17- 9 Roberts, Prairie O. & G. 2.
32-17- 9 Marshall, Linebarger & Nelson 1.
14-16- 8 Canada, Phillips Pet. 5.
23-16- 8 Broadnox, D. B. Mason 3.
25-16- 8 Buckner, Malcona Pet. 1.
9-16- 9 Self, Garragher 1.
15-16- 9 Unallotted, T. B. Slick 3.
16-16- 9 McDermott, Carter Oil 2.
21-16- 9 Jacobs, Emery & Sons 4.
27-16- 9 Unallotted, Abraham et al 3.
29-16- 9 Hamilton, Kerwin et al 2, 3.
34-16- 9 Barnett, Clay et al 2.
36-16- 9 Hamilton, Jomac Oil 2.
9-16-10 Potter, C. Williams et al 1.
32-16-10 Deere, Phillips Pet. 3.
2-15- 8 Unallotted, Roaldn Oil 2.
3-15- 8 Snapp, H. F. Wilcox 3.
14-15- 8 Gooden, Damon 1.
15-15- 8 Watson, Cosden Oil & Gas 1.
21-15- 8 Wilson, Schermerhorn 1.
35-15- 8 Hill, Tibbens 1.
4-15- 9 Wisner, Phillips Pet. 1, 2.
29-15- 9 Colbert, Irish Oil 1.
15-15-10 Clinton, Skelly Oil 3.
28-15-10 Harry, Mountain Park Oil 1.
9-14- 8 Ah-La-Quanna, Cohen et al 1.
12-14- 8 Bruner, Tibbens 1.
27-14- 8 McIntosh, Billingslea 5.
35-14- 8 Beaver, Independent Oil & Gas 5
2-14-10 Mukes, Kerschner 1.
4-14-10 Brown, Phillips Pet. 1.
Rigs, 31; wells drilling, 116; total, 147.

PAWNEE COUNTY

Wells Drilling

24-20- 8 Bank, Southwestern Oil Fields 5, 6.
6-22- 2 Miller, Miller & Wrightsman 1.
33-23- 3 Robedeaux, Watchorn Oil & Gas Co. 3, 10.
Brown, Watchorn Oil & Gas 1.
12-21- 3 Sayre, Ossenbeck et al 1.

Shut Down

24-20- 8 Hamilton, Tidal Oil 10.
32-20- 8 Parker, Burton & Breslyn 1.
25-20- 9 Smith, E. C. Lee 2.
27-20- 9 Unallotted, Holmes et al 1.
31-21- 3 Christie, Colorado Oil & Gas 1.
Rigs, 0; wells drilling, 9; total, 9.

PAYNE COUNTY

Wells Drilling

21-19-1w Ponca Oil & Gas 1.
9-18-2w Wyant, Beaty & Hatch 1.
27-19- 4 Miller, Magnolia Pet. 8.
Rigs, 0; wells drilling, 3; total, 3.

KAY COUNTY

Rigs

9-27- 5 Waite Phillips Co. 2.
10-27- 5 Carter Oil 4.
16-27- 5 Pepper, Phillips Pet. 1.
McCassey, Pure Oil 4.
22-27- 5 Skelly-Phillips 5.
23-29- 3 Brown, Willard & Scott 1.
24-26-1w Miles, Alcorn Oil 1.
15-27-1w Show, Otstot & Poling 1.
35-25-1w Cgg, Comar Oil 8, 9, 11.
4-27- 5 Sands, Gypsy Oil 3.

Wells Drilling

2-27- 5 The Texas Co. 1.
4-27- 5 Comar Oil Co. 1.
6-27- 5 Phillips Pet. 6.
32-29- 5 Bellmard, McCrae et al 1.
33-29- 5 Bellmard, Galvez Oil 1.
31-27- 2 Garrett, Comar Oil 1.
18-25- 2 Four Eyes, Marland Ref. 2.
20-25- 2 Miller, Marland Ref. 2.
31-25- 2 101 Ranch, Marland Ref. 1.
7-26-1w Goodson, Southwestern Pet. 1.
9-27-1w Cumiev, Blackwell Oil & Gas 1.
15-27-1w Johnson, Otstot et al 2.
16-27-1w Slocum, Otstot et al 2.
32-17-1w Filedge, Amerada Pet. et al 1.
27-25-1w Sutter, McMan Oil 4.
Knostman, The Texas Co. 1.
Morse, Waite Phillips 1.
33-26-1w Russell, Marland & Cosden Cos. 1-A, 2-A.
Woods, Marland & Cosden 3-A, 6, 8-A.
34-25-1w McKee, McCaskey & Wentz 22, 38, 41, 42, 43, 44.
Endicott, Comar Oil 3-C, 4-B, 4-C, 7-A, 7-B, 8, 8-B, 9.
Beverlin, Comar Oil 3-B, 6-A, 7, 9-A, 10, 12, 12-A, 13-A, 16-A, 17, 18, 18-A, 20, 21, 21-A, 22, 22-A.
McDaniel, Blackwell Oil & Gas 3-B.
35-25-1w Endicott, Comar Oil 8-B.
Ogg, Comar Oil 4-B.
22-29-2w Elwell, Guyler & Daniels 1.
1-26-2w Hubbard, Alcorn Oil 1.
11-27-1w Lane, Western States 1-A.
9-25-2w Chambers, Besdor Oil 1.
27-25-2w Simons, W. E. Brown 1.
36-25-2e Davis, Emery & Leright 1.

Shut Down

4-27- 5 Sands, Gypsy Oil 4.
9-27- 5 Phillips Pet. 2, 4, 5.
15-27- 5 Sapulpa Ref. Co. 7, 8.
Twin State Oil 6, 7, 8, 9, 10.
Comar Oil Co. 3, 4, 5, 7, 8.
16-27- 5 Riggs, Skelly-Phillips 2, 3.
McCassey, Pure Oil 3.
22-27- 5 Skelly-Phillips 6, 10.
32-28- 5 Arnold, Waite Phillips 1.
36-29- 4 Taylor, Gladys Belle Oil 1.
8-28- 2 Carder, Mid-State Pet. 1.
14-26- 2 Bell, Waite Phillips 1.
11-28- 1 Lowery, Brown & Woods 1.
15-28- 1 Trenary, Grand Island Oil 1.
28-25-1w Mahoney, McCaskey & Wentz 1.
30-25-1w Frazier, Bailey & Thompson 1.
33-25-1w Russell, Marland & Cosden 4.
35-25-1w Endicott, Comar Oil 10, 4.
Ogg, Comar Oil 3.
36-25-1w Sipe, Amerada Pet. 1.
26-28-2w Armstrong, Fleming & Lewis 1.
8-26-2w Smith, Day Oil 1.
Rigs, 12; wells drilling, 102; total, 114.

GARFIELD-NOBLE COUNTIES

Rigs

2-24-1w Clark, Gypsy Oil 68, 69, 72, 73.
Gaume, Comar Oil 6, 8-B, 9-A, 9-B, 11-A, 11-B, 12-A, 12-B, 13-A, 14, 14-A, 15, 16.
Blubaugh, Comar Oil Co. 8-B, 15-A, 17-A, 22, 22-A, 23, 23-A, C-1B, C-3A, C-5A, C-4A, C-7A, C-8, C-8A.
9-24-1w Gravel, John Herron 1.
10-24-1w Novotny, Prairie 5-B.
11-24-1w Rence, Healdton O. & G. 13, 14-A.
3-23-1w Cooper, Failing et al 1.
25-23-1w Burnside, Jankowsky et al 1.
7-21-3w Kettner, Chaffee et al 1.
25-20-4w McCullough, Danciger Oil 1.
19-20-5w Ray, Atlantic O. P. et al 1.
11-21-4w Boepple, Boepple et al 2.
31-21-5w Champ, Summers Oil 1.

Wells Drilling

12-24-3e Roya, The Texas Co. 1.
2-24-1w Clark, Gypsy Oil Co. 63, 64, 74, 75, 76, 77.
Gaume, Comar Oil 3-B, 11, 12.
School Land, Griffith & Ash 1.
Blubaugh, Comar Oil 7-A, 9-A, 9-B, 10, 10-A, 10-B, 11-B, 13-A, 13-B, 16, 16-A, 18, 18-A, 19, 19-A.
3-24-1w Ruzek, Comar Oil 8-A, 9, 12-A, 13, 13-A, 14, 14-A, 15.
Carmichael, Comar Oil 3-B, 6-A, 9-A, 9-B, 12-A, 12-B, 15-B, 17-A, 18-B, 19-A, 19-B, 21, 21-A, 22-A, 23, 23-A, 24, 24-A.
10-24-1w Evans, Gypsy Oil 14, 18, 21.
Novotny, Prairie O. & G. 4-B, 5-B, 7.
11-24-1w Rence, Healdton O. & G. 5-A, 8-A, 8-B, 11, 12, 12-A.
20-24-1w Read, Eureka Oil 1.
21-24-1w Burch, Champlin et al 1.
27-24-1w Champlin et al 1.
21-23-1w Forman, Walters O. & G. 1.
32-20- 1 Boyle, Nelson & Hayden 1.
14-20-1w Ruhr, Walters O. & G. 1.
16-21-1w Scott, Magnolia Pet. 1.
31-21-1w McNeely, Snowden & McSweeney 1.
5-24-1w Riley, Alcorn 1.
17-22-2w Murphy, Prairie Oil & Gas 1.
11-22-7w Harmon, Furlow Dev. 1.
6-23-3w Millard, Croxton et al 1.
9-21-3w King, Rabbits Foot 2.

Shut Down

14-24-2e Kemple, Ossenbeck et al 1.
20-24-2e LeClair, Ossenbeck et al 1.
2-24-1w Clark, Gypsy Oil 59, 60, 61, 62, 70, 71.
Gaume, Comar Oil 13.
Blubaugh, Comar Oil 12-B, 15, 17.
3-24-1w Ruzek, Comar Oil 7-A, 7-B, 15-A.
Carmichael, Comar Oil 13-A, 13-B, 22.
10-24-1w Novotny, Prairie Oil & Gas 6-B.
Plumb, Humphreys Pet. 4.
15-24-1w See, Comar Oil 7-A, 15.
16-24-1w School Land, Marland & Cosden 1.
1-22-2w White, Frank Kelly et al 1.
15-22-3w Baldwin, Chenbeck et al 1.
12-22-4w Fine, Hopper et al 2.
25-22-4w Matson, Empire G. & F. 19.
32-22-4w Beisel, Pulaski Oil 1.
36-22-5w Miller, B. E. Walter O. & G. 1.
20-22-4w Cruce, Hollingsworth et al 1.
13-20-4w Tammell, Summers O. & G. 1.
G. 1.
8-23-6w Hess, Weir & Wood 1.
Rigs, 41; wells drilling, 114; total, 155.

CARTER COUNTY

Rigs

30-2s-2w Ellis, Cotton Belt Pet. 5.
31-2s-2w Bennett, Magnolia Pet. 10, 4.
25-2s-3w Tucker, Magnolia Pet. 3.
Adams, Neustadt 1.
Hinkle, N. L. Amster 1, 2.
26-2s-3w Fee, C. R. Smith 7.
35-2s-3w Brooks, Rockland Oil 9.
5-3s-2w Palmer, Schermerhorn 1.
Poland, Southerland Oil 2.
6-3s-2w Fee, Smith et al 1.
15-4s-2w Woodruff, Magnolia Pet. 25.

Wells Drilling

26-3s-1w Willis, Magnolia Pet. 1.
17-2s-1e Johnson, Magnolia Pet. 1.
20-5s-1e Criner, Amerada Pet. 2.
34-5s-1e Butler, Amerada Pet. 1.
7-2s-2w Pearce, Coline Oil 5.
30-2s-2w Sparks, Schermerhorn 3, 4, 5.
Dings, Skelly Oil 2.
Carr, Magnolia Pet. 1.
31-2s-2w Bennett, Merrick & Kirk 11.
Sheppard, Abe Kaufman 1.
The Texas Co. 3, 4.
32-2s-2w Palmer, Schermerhorn 4.
Rodgers, Magnolia Pet. 1.
28-1s-3w Jenkins, Humble O. & R. 1.
2-2s-3w Lyles, Barber et al 1.
13-2s-3w Pierce, Pringle et al 1.
14-2s-3w Lyles, Humble O. & R. 1.
23-2s-3w Laymon, Magnolia Pet. 3.
24-2s-3w Williams, Magnolia Pet. 1.
Holden, Wirt Franklin 2.
Abernathy, Schermerhorn 3.
25-2s-3w Harris, Wirt Franklin 2.
Fee, Westheimer & Daube 1.
Wolfe, Great Southwestern 1-B.
Tucker, Magnolia Pet. 1, 2.
Taylor, Magnolia Pet 3.
Jefferson, Twin State Oil 1.
Phillips, Atlantic O. P. 1.
Jefferson, Wirt Franklin 1, 2.
Laymon, Magnolia Pet. 2, 3, 4.
Jefferson, N. L. Amster 2.
Taylor, Magnolia Pet. 2, 3.
26-2s-3w Fee, C. R. Smith 6.
35-2s-3w Brooks, Rockland Oil 6.
Frazier, Healdton Pet. 1.
5-3s-2w Palmer, Schermerhorn 2.
Cobb, Merrick 1.
6-3s-2w Palmer, Fatsy Oil 1, 6.
7-3s-2w Heskett, Woodruff 1.
9-4s-2w Lowery, Sure Oil 2.
10-4s-2w Dillard, Carter Oil 2.
15-4s-2w Woodruff, Magnolia Pet. 23, 33.
16-4s-2w Ward, Carter Oil 19.
Ward, Southerland Oil 7.
Gazaway, Humble O. & R. 9.
21-4s-2w Noble, Carter Oil 39, 40, 41, 42.
Ward, Carter Oil 20.
Noble, Fitzgerald 7.
22-4s-2w Dillard, Humble O. & R. 8, 9.
Carr, Magnolia Pet. 10, 11.
4-4s-3w Jones, Coline Oil 26.
11-4s-3w Davis, Holliday Oil 1.
11-5s-3w Beal, Wickenheiser & Rose 1.

Shut Down

16-4s-1e Bishop, Ed Felmlee 1.
20-5s-1e Baptiste, Amerada Pet. 18, 19.
Farve, Amerada Pet. 10.
Baptiste, Amerada Pet. 2.
19-2s-2w Brooks, Emp.re G. & F. 1.
30-2s-2w Sparks, Cameron Ref. 5.
Ricketts, Schermerhorn 2.
Sparks, Humble O. & R. 1.
Sparks, Cotton Belt 4, 5.
Ellis, Cotton Belt 3.
31-2s-2w Bennett, Kirk O. & G. 10.
Fowler, Merrick et al 1.
Dings, Merrick et al 2.
Burrow, Healdton O. & G. 3, 4.
Moyer, Healdton O. & G. 2.
Bennett, Magnolia Pet. 6, 11.
Bennett, Merrick & Kirk 10.
32-2s-2w Moyer, Healdton Pet. 1.
22-2s-3w Carpenter, Humble O. & R. 2.
24-2s-3w Holden, Wirt Franklin 1.
27-2s-3w Fee, C. R. Smith 5.
McClure, Paige Oil 4.
5-3s-2w Cruce, Schermerhorn 1.
8-3s-2w Harrison, Noble et al 1.
9-4s-2w B. A. Simpson et al 1.
Walker, Sure Oil 11.
Walker, Humble O. & R. 14.
10-4s-2w Rexroat, Cotton Belt 4-C.
15-4s-2w Woodruff, Carter Oil 9.
Martin, Sure Oil 7.
16-4s-2w Westheimer, Amster Oil 9.
21-4s-2w Horton, Magnolia Pet. 10.
Noble, Skelly Oil 10.
22-4s-2w Dillard, Skelly Oil 15-A.
Fee, Baker-Strawn 4-A.
11-4s-3w Davis, Holliday Oil 1.
Rigs, 13; wells drilling, 107; total, 120.

STEPHENS COUNTY

Rigs

19-1n-5w Payne, Gant et al 1.
33-1s-8w Ramsey, Magnolia Pet. 16.
25-1s-9w Cox, Holmes 7.

Wells Drilling

2-2n-5w Rigdon, Sappington et al 1.
24-2s-5w Homer, Pure Oil 1.
28-3s-4w Sullivan, Cameron, Galt 1.
25-1n-6w Barnes, Magnolia Pet. 1.
2-2s-6w Saunders, Magnolia Pet. 1.
5-2s-6w Andrea, Lone Star 3-A.
17-2s-6w McBee, Cook O. & G. 1.
23-2s-6w Farris, Magnolia Pet. 2.
4-3s-6w Peek, Magnolia Pet. 1.
35-1s-7w Tucker, J. C. Cook Oil 1.
5-1s-8w Ballard, Choctaw Oil 3.
16-1s-8w Kirk, Priddy et al 2.
20-1s-8w Bartley, Magnolia Pet. 6.
25-1s-8w Hall, Champlin & Winkler 3.
30-1s-8w Clarkson, Lone Star Gas 1.
33-1s-8w Kagay, Magnolia Pet. 15.

Shut Down

3-1n-4w Graham, T-P C. & O. 1.
2-1n-5w Payne, Clark & Cowden 3.
11-1n-5w Darnell, Daisy Belle 1.
Simpson, Kilgore Oil 4.
13-1n-5w Anderson, Boone et al 2.
23-1n-9w Brown, Glenhoma Oil 2.
28-1s-8w Taliaferro, Sykes et al 1.
Rigs, 3; wells drilling, 33; total, 36.

MISCELLANEOUS

Rigs

Coal County—
18-2n- 9 Hicks, Bassie Oil 1.
Kingfisher County—
25-17-5w Smith, Bryssey & Hines 1.
Texas County—
4-1-12e Allison, Home Development Co. 2.
Grant County—
3-26-6w McKeeman, Wrightsman 1.
Washita County—
23-9-17w Unknown, Hartman et al 1.
Pottawatomie County—
19- 7-4e Neglingquet, Pierce Oil et al 1.
Canadian County—
29-11-7w Saunders, Radio Oil 1.
12-10-5w Thompson, Short & Thompson 1.
Beckham County—
34-10-24w Green, Boilleau 1.
15-9-23w Goldsmith, Hivick & Stone 1.
Goldsmith, Menzie et al 1.
Goldsmith, Clark & Tipton 1.
16-9-23w Unknown, Sand Hill Oil 1.
20-9-23w Harrison, Kinard et al 1.
21-9-23w Emsey, Coogan & Wallace 1.
32-9-23w Jackson, J. N. Simpson 1.
Unknown, Foster & Santrock 1.
18-9-22w Seidel, G. B. Christmas 1.
Caddo County—
12- 5-9w Wagner, Gorton Trust 1.
13- 5-9w School Land, Gorton Trust 1.
Grady County—
11- 4-8w Smith, Magnolia Pet. 1.
11- 6-8w Holloway, Nichols Drilling 1.
11- 4-8w Williams, Magnolia Pet. 1.
23- 7-5w Johnson, Grady County Oil 1.
15- 4-7w White, Clark et al 1.
Logan County—
28-16-1w Ganouch, Lambert et al 1.
Garvin County—
3-1n-3w Gibson, Magnolia Pet. 1.
10-1n-3w Gibson, Magnolia Pet. 3.
16-1n-3w Robinson, Texas Pacific 8.
20-1n-2w Parks, Jones et al 1.

Wells Drilling and Shut Down
(Shut Down Wells Indicated by *)

Greer County—
23-7-23w D'Armond, Western Nat. Gas 1.
Grant County—
20-26-4w Edwards, Emery & Leright 1*.
22-27-3w Stewart, Western States 4.
26-27-3w Snouffler, Associated P. & R. 1*.
22-25-4w Volmer, Myers O. & G. 1*.
19-25-4w Reynolds, Hutchinson et al 1.
23-29-3w Hoffman, Ossie Oil 1.
7-28-3w Nelson, Mariand Refining 1.
8-27-8w Moon, Midwest & Gulf 1.
25-27-7w Sheppard, Walters O. & G. 1.
8-26-5w Bonham, Jarvis et al 1.
11-25-7w Kuykendall, Walters O. & G. 1.
14-25-5w Midgley, Myers O. & G. 1.
Woodward County—
34-20-2w Unknown, Beard et al 1*.
Woods County—
19-25-14w Whitney, McCray et al 1*.
Logan County—
36-15-2w Baker, Oklahoma Drilling 1*.
32-19-3w Newman, Burford & Brimm 1*.
9-18-2w Wyatt, Mulhall Oil 1*.
28-18-4w Moor, Franklin Oil 1.
33-18-3w Guier, Pioneer Pet. 1.
Lincoln County—
6-17-4e Payne, Magnolia Pet. 2.
28-17-3e Unknown, Plateau Oil 1.
21-16-3e Hazlett, Pryor & Bellaire 1.
17-16- 5 Randolph, Roxana Pet. 1*.
15-16- 6 Hubbard, Johndahl et al 1*.
10-16- 5 Wyman, Mascho et al 1.
16-16- 4 School Land, Sartain Bros. 1.
26-16- 6 Bartles, Flynn et al 1.
2-16- 4 Unknown, J. A. Dingwall 1.
17-15- 2 Powell, Mutual Oil 1.
15-15- 6 Lovett, Blankenburg et al 1*.
21-14- 6 Schieff, Stroud O. & G. 1*.
7-14- 4 Norton, Heinz & Green 1.
14-13- 6 Heinzig, Producers & Refiners 1*.
18-13- 5 Gallagher, Sun Ray 1.
Kingfisher County—
30-16-9w Benson, Pansy Oil 1*.
Cherokee County—
23-18-19e McKay, Great Western Dev. 1*.
23-19-21 Unknown, Adkinson et al 1.
35-19-23 Unknown, Gayhoma Oil 1*.
20-17-22 Benge, Beeler et al 1*.
6-16-22 Unknown, Corridan et al 1*.
Blaine County—
25-15-10w Erlenmier, Oko Oil 1.
7-8-16w Cronister, Byers et al 1*.
Canadian County—
34-14-9w Dawson, Chase O. & G. 1.
Custer County—
1-15-15w Ruth, Parker O. & G. 1*.
26-15-18w Hatcher, Price & Pringley 1*.
1-14-14w Boone, Guiller & Ossenbeck 1*.
23-13-14w Fry, Pauline Oil 1*.
Pittsburg County—
22-3-13e Fee, Ward Smith 1.
28-8-15e Cheadle, Eugene Oil 1.
Roger Mills County—
28-14-23w Lindall, Porter Lease Syndicate 1*.
3-13-23w Baker, Concord Oil 1*.
Harmon County—
21-2-26w Unknown, J. C. Keys 1.
Oklahoma County—
29-13-1e Lovett, Charles Shaw 1.
8-12-1w Hendricks, W. R. Ramsey 1.
36-11-3w Unknown, McBith 1.
Jackson County—
20-3n-30w Baker, Douglas Oil 1.
36-2n-23w Unknown, Ship et al 1.
Washita County—
29-8-16w Wilkinson, Enid Garber Oil 1*.
Cleveland County—
20-10-4w Rowland, Garr Oil 1*.
Sequoyah County—
1-11-21e Wilson, Mathes Pet. 1*.
Grady County—
4- 5-6w Chitwood, Hagerling et al 1.
11- 4-8w Pettit, Ramsey et al 1.
28- 3-5w Harrison, Ray Oil 2.
19- 6-5w Carson, Lampton et al 1.
17- 5-7w Neil, Arrasmith et al 1.
22- 4-8w Cox, Eller et al 1.
14- 5-8w Irving, Magnolia Pet. 1.
15- 5-7w Jelks, Badgett & Hughes 2.
35- 5-8w Smith, Magnolia Pet. 2.
8- 6-7w Bledsoe, Nichols Drilling 1*.
10- 9-6w Williams, United American 1.
28- 6-8w Nelson, Null et al 1.
18- 5-8w Stewart, Kennedy et al 1*.
23- 5-8w Hill, Atlantic O. P. 1*.
16- 5-8w School Land, Concord Oil 1*.
4- 5-6w Lewis, Hagerling et al 1.
14- 4-8w Pendley, Magnolia Pet. 1.
36- 4-8w Brown, Phillips & Caudill 1.
16- 2-6w Staton, Concord Oil 1.
Beckham County—
24- 9-25w Dougcr, Clay et al 1.
14- 9-23w Gibson, Ship & Nash 1.
32- 9-23w Dalton, Simpson 1.
4- 8-24w Unkrown, Small et al 1.
25-10-23w Unknown, Simpson et al 1*.
35- 9-25w Gibson, Grimes et al 1.
6- 9-24w Burkhalter, Pringle et al 1.
26- 9-23w Sheets, Sayre O. & D. 1.
32- 9-23w Knight, Simpson et al 1.
33- 9-23w Martin, Foster Oil 1.
8- 8-26w Unknown, Buffalo Oil 1.
4- 8-22w Ross, Turman Oil 1.
25- 8-22w Vameter, Kadane et al 1.
36- 9-24w Ezell, Magnolia Pet. 1.
16- 9-23w Unknown, Magnolia Pet. 1.
21- 9-23w Roberts, Ike Williams 1.
10- 8-21w Kelly, Bunnell 1.
Caddo County—
8-11-12w West, Birmingham & Kelsey 1.
5- 5- 9w Cutshall, Mills & Christian 1*.
10- 5- 9w Bigby, McCullough et al 1*.
12- 5- 9w Stephens, Saunders O. & G. 1.
14- 5- 9w Boutreger, Kennedy et al 1.
12- 5- 9w Wagner, Flora Okla. 1.
Kiowa County—
33- 6-20w School Land, Kiowa Drg. 1.
34- 7-16w Indian Land, Conner et al 1.
Pottawatomie County—
13-11-3e Unknown, Blauner et al 1.

10- 6-2e McGee, Davy et al 1*.
18-7n-5e Vinson, Magnolia Pet. 1*.
13-10-2e Howell, Ossie Oil 1.
25-10-4e Brooks, Noco Pet. 1.
4- 5-5e McFarland, King et al 1*.
McClain County—
36- 7-4w Barnett, Washington Dev. 1*.
Pontotoc County—
32- 5-2e Brown, Carter et al 2.
5- 4-5e Starrett, Craig et al 1*.
34- 4-6e Perry, Lancaster & Smith 1*.
34- 5-6e Strong, Bowles & Smith 1*.
33- 5-8e Shields, Homa Okla. Oil 1.
31- 5-5e Lewis, La Salle et al 1.
Garvin County—
20- 4-4w McKinnon, Ethel Oil 1.
18- 3-3w Dennison, Hayes et al 1.
3-1n-2w Property, Kennedy et al 1.
24-1n-3w Bradford, Texas Pacific 1.
35- 4-1e Hines, Owl O. & G. 1*.
30-2n-3w Crawford, Culver et al 1*.
5-3n-3e Grey, Gum Bros. 1*.
18-1n-3w Derdyn, Magnolia Pet. 1.
36-3n-3w Sutton, Rinehart et al 1.
10-3n-3e Huttall, Heath & Bowman 1*.
27-2n-1e Forman, Garland 1.
29-2n-2e Murray, Magnolia Pet. 4.
9-1n-3w Gann, Magnolia Pet. 4.
10-1n-3w Cowan, Magnolia Pet. 6.
Gibson, Magnolia Pet. 6.
11-1n-3w Harkreader, Ship et al 3.
14-1n-12w Newberry, Davis & Younger 1, 3, 4, 5.
Newberry, Jones et al 6.
16-1n-3w Orr, Magnolia Pet. 8.
Robinson, Texas Pacific 9.
31-1n-2w Prince, Carver Bros. 1*.
18-1n-1e Richardson, Bidner et al 1.
Comanche County—
29-1n-12w Bentley, Bentley 1*.
24- 2-10w Cox, Sherry et al 1.
Cimarron County—
22- 5-9e Martin, Campbell Riley et al 1*.
Beaver County—
33-5-28e Dewey, Gate Valley Oil 1*.
6-1-20e James, Empire 1.
Texas County—
6-1n-17e Wood Ranch, Beaver Oil 1*.
Coal County—
7- 2- 8 Spears, Mecca Oil 1*.
34-2n- 9 Park, Bearman et al 1.
Pushmataha County—
33-2n-19e Eachwood, Anchoe Oil 1*.
31-3n-15e McGee, George et al 1.
7-4n-15e Fish, Luffborough et al 1.
13-2n-17e Richardson, 640 Oil 1.
36-1n-17e Unknown, Bentley 1.

SOUTHERN OKLAHOMA

Rigs

McCurtain County—
35-8s-23e Brown, Noco Pet. 1.
Jefferson County—
16-6s-7w Jackson, Humble O. & R. 1.
Marshall County—
27-5s-4e Chafney, Dick et al 1.
Love County—
22-6s-4e Bowman, Humble O. & R. 1.
Bryan County—
17-4s-11e Dabney, Hanson et al 1.
30-5s- 7e Cardinal, Metz Oil 1.
Murray County—
13-1-3e Lawrence, Stauffer et al 1.

Wells Drilling and Shut Down
(Shut Down Wells Indicated by *)

Murray County—
11-1s-1e Rowe, Beard & Miller 1.
18-1n-1e Richards, Bidner et al 1.
16-1n-2e Hohanna, Corn Huskers Oil 1*.
Tillman County—
36-1n-17w School Land, Harmon 1*.
23-2s-17w Foster, Luffborough 1.
7-2s-18w Duncan, Battes et al 2.
10-4s-18w Couch, Spears et al 1.
McCurtain County—
15-8s-25e Harris, Bellworth O. & G. 1*.
15-8s-26e Wilson, Red River Pet. 1*.
Love County—
9-7s-1w Gray, Davenport et al 1.
11-7s-2e Wilson, Drillers Syndicate 1*.
29-6s-1e Pittman, Sturm et al 1*.
27-6s-2e Draughn, Union Dev. 1*.
29-6s-3e Starrett, Northwestern Oil 1*.
Marshall County—
22-6s-4e Bowman, Humble O. & R. 1.
30-5s-7e Cardinal, Metz Oil 1.
18-5s-7e Burney, Alexander & Ellis 1*.
1-6s-6e Sutleffe, Moore 1.
14-6s-6e Simmons, Winters et al 1.
17-5s-5e Fee, Scara Oil 1.
Johnson County—
7-5s-8e Wilson, Tucker et al 1.
9-4s-4e Trotter, Root et al 1.
Jefferson County—
10-7s-6w Wray, Lung 1.
13-7s-6w Reed, Landis et al 1.
33-7s-6w Stanfield, Elzie et al 1.
33-6s-6w Watkins, Lavin & Franklin 1.
25-6s-6w Spring, Dingwall & Sargent 1.
Bryan County—
21-4s-8w Anderson, Shawyer & Sutter 1*.
32-7s-8e Ramsey, Barileu 1.
14-7s-7e Love, Hailey et al 1*.
Choctaw County—
2-4s-15e Smith, Smith et al 1*.
6-5s-15e Hannaville, Fidelity O. & G. 1*.
Atoka County—
7-2s-9e Wyand, McPherson et al 1*.
28-2s-9e Underwood, Wapanucka Dev. 1.
1-2s-9e Kemp, Florence Oil 2.
Rigs, 33; wells drilling, 183; total, 216.

KANSAS FIELDS

Summary of Wells Completed

County—	Comp.	Prod.	Dry	Gas
Butler	20	372	10	1
Chautauqua-Elk	5	28	3	0
Marion	1	0	1	0
Greenwood-Woodson	39	693	16	0
Montgomery-Wilson	2	10	1	0
Neosho-Allen	3	1	2	0
Miami-Franklin-Anderson.	7	165	4	0
Miscellaneous	18	275	8	4
Total Sept.	95	1,544	45	5
Total Aug.	141	2,786	67	3
Difference	46	1,242	22	2

Summary of New Operations

County—	Rigs	Drg.	Total
Butler	6	19	25
Chautauqua-Elk	0	2	2
Marion	3	1	4
Greenwood-Woodson	27	40	67
Montgomery-Wilson	1	2	3
Neosho-Allen	0	3	3
Miami-Franklin-Anderson	1	4	5
Miscellaneous	10	60	70
Total Sept.	48	131	179
Total Aug.	52	154	206
Difference	4	23	27

BUTLER COUNTY

11-25- 8 Teichgraeber, Harwood & Winters 2 25
22-26- 9 Duke, Marshall et al 1 30
27-28- 5 Meyers, Shawver & Sutter 4.. 12
18-23- 4 Leydig, Broadview Oil 8 .... dry
26-28- 5 Molter, Johnson & Derby 5 .. 100
28-28- 5 Hufman, Ramsey-Lloyd Oil 2 .. dry
14-30- 4 Magnuson, Cassoday Oil 3.... 100
Magnuson, Cassoday Oil 4.... 35
35-24-3e Brainerd, Sanford et al 1.... dry
10-28-3e Hyde, Frawley & Ramsey 1.. dry
16-29-3e Walker, Hartman & Skaer 1.. dry
32-26- 6 Schriber, Lewis Oil 1 30
17-26- 7 Creek, Peer Oil & Prairie 1 .. dry
36-26- 7 Hulman, Stearns et al 1 .... dry
17-27- 7 KnoxWray et al 1 ..... gas
6-29- 5 Smith, Morgan et al 1 ..... dry
1-26- 3 Nelson, Connell Pet. 1 ..... dry
24-27- 7 Barber, Sharpless et al 1 .... dry
7-26- 7 Demoure, Cascade Oil 3 5
17-24- 5 Beaumont, Knightlinger et al 1 35

Wells completed 20
Production 372
Dry 10
Gas 1
Gas production 2,500,000

CHAUTAUQUA-ELK COUNTIES

30-32- 9 Underwood, Florence Oil 1 .. dry
8-28-11 Hillyards, Otey et al 1 8
36-33-10 Denman Bros., C. E. Roth 17.. 20
30-30-11 Beaty, Small et al 1 ..... dry
26-29-10 Mentz, Mentz & Johnson 1 .... dry

Wells completed 5
Production 28
Dry 3
Gas 0
Gas production 0

MARION COUNTY

10-22- 5 Grace Watchorn et al 1 ..... dry

Wells completed 1
Production 0
Dry 1
Gas 0
Gas production 0

GREENWOOD-WOODSON COUNTIES

14-24-12 Felley et al, Cosden O. & G. 9 20
32-23-15 Weidie, Arkansas Fuel Oil 3.. 20
6-23-15 Young, Pratt Oil 3 10
Young, Pratt Oil 4 15
7-23-15 Young, Orlando Pet. 1 25
16-23-15 Crotty, Devore & Cooper 1 .... dry
30-23-15 Grey, Chambers 1 ..... dry
31-23-15 Weidie, Arkansas Fuel Oil 1.. 10
29-20-13 Milmer, Waite Phillips 8..... dry
28-22-13 Barnard, R. G. Gillespie 2.... dry
14-24-12 Sullivan, Cosden O. & G. 9.... 30
17-22-10 Browning, Rhodes 2 100
31-22-10 Barnard, Rogers & Brown 1.. 20
8-22-11 Curry, Dingee et al 1 ..... dry
14-22-11 Killeson, Empire G. & F. 2.. 40
18-22-11 Harris, The Texas Co. 1 .... dry
33-22-11 Westcott, R. G. Gillespie 14.. 5
Westcott, R. G. Gillespie 15 .. 25
28-23-10 Thrall, Great Southern 3..... 35
23-23-10 Mason, Mid-Kansas O. & G. 3 40
24-23-10 Burkett, Tidal Oil 5 15
29-23-10 Thrall, Mission Oil 31..... 45
3-23-10 McKee, Phillips Pet. 3..... 30
30-23-11 Beal, Robinson et al 1 ..... dry
8-23-11 Holland, Pulaski Oil 2 40
11-24-10 Parks, White Eagle O. & R. 1 dry
5-28-11 Anderson, Clark 1 ..... dry
8-28-11 Town Lot, Clark 1 8
27-29-10 Baughman, Orr Drg. 1 30
25-22- 9 Leedy, Skelly Oil 1 ..... dry
1-35- 7 Smith, Tidal Osage Oil 2 60
18-24-10 Smith, Nye et al 1 ..... dry
22-24-10 Race, Duncan et al 1 ..... dry
19-26-10 Brookover, Ross & Hight 1.... dry
1-21-12 Brewer, Pryor & Lockhart 1 dry
27-22-13 Koenig, Gillespie 6 ..... dry
8-23-11 Holland, Darby 5 40
16-20-11 Cowan, Empire G. & F. 1.... dry
8-23-11 Holland, J. F. Darby 5 40

Wells completed 39
Production 693
Dry 16
Gas 0
Gas production 0

MONTGOMERY-WILSON COUNTIES

10-31-15 Midkiff, Steinberger Bros. 3.. 10
7-32-17 Taylor, Oakleaf et al 3 ..... dry

Wells completed 2
Production 10
Dry 1
Gas 0
Gas production 0

NEOSHO-ALLEN COUNTIES

26-26-18 Sharp, Young Bros. 3 ..... dry
30-26-19 Binger, W. W. Wood et al 9.. 1
14-28-18 Mullin, R. H. Mullin 1 ..... dry

Wells completed 3
Production 1
Dry 2
Gas 0
Gas production 0

MIAMI-FRANKLIN-ANDERSON COUNTIES

15-21-20 Odaffer, Derby Oil 3 75
14-21-20 Farlow, Falkenhorn Bros. 1 .. dry
Cochran, Southwestern Pet. 2 50
Ewing, Peerless Oil 1 ..... dry
5-21-20 Finkenburg, Peerless Oil 1 .... dry
14-21-20 Ewing, Peerless Oil 2 ..... dry
Brichelsen, T. W. Reid 2 40

Wells completed 7
Production 165
Dry 4
Gas 0
Gas production 0

MISCELLANEOUS

KANSAS

Cowley County—
1-35- 7 Smith, Tidal Osage Oil 2 60
13-31- 4 Miller, Trees Brothers 1..... 20
12-32- 4 Smiley, Arkansas Fuel Oil 1.. gas
25-32- 4 McFadden, Rathvon et al 5 .. 75
36-32-4 Hodges, Empire G. & F. 3.... 50
16-32- 5 Porter, Sutter et al 1 ..... gas
1-33- 4 Graham, Paul Trees 1 10
30-34- 3 Shurtz, Elwell et al 1 ..... dry
13-31- 7 Brown, Empire Gas & Fuel 2 gas
8-31- 6 Scott, Collins et al 1 ..... gas
6-32- 5 Dudgeon, Arkansas Fuel Oil 1 60
35-32- 3 Malt, S. H. E. Oil 1 ..... dry
25-30- 4 Rogers, Broadview Oil 1 .... dry
Chase County—
24-20-13 Crail, Hawes & Smith 1 .... dry
Coffey County—
17-22-15 McMullin, R. G. Gillespie 1 .. dry
23-20-13 Crail, Smith & Howes 1 ..... dry
11-20-13 Turner, Cranshaw et al 1.... dry
Jewell County—
16- 2- 1 NW Quarter, Mitchell O. & G. 1 ..... dry

Wells completed 18
Production 275
Dry 8
Gas 4
Gas production 13,500,000

BUTLER COUNTY

Rigs

32-26- 8 Schriver, Foraker 1.
18-27- 7 Eckel, Moulter & Ray 1.
23-28- 7 Brewere, Rich et al 1.
1-29- 8 Baker, Tobin et al 1.
36-27- 5 Yates, Yates O. & G. 5.
26-28- 5 Molter, National Ref. 1.

Wells Drilling

29-29- 8 Ogden, Stark et al 1.
15-24- 8 Hancock, Sharpless & Stark 5.
31-24- 4 Maxwell, Oklahoma F. & R. 4.
5-26- 4 Gillespie, Neely Bros. 1.
24-27- 4 Skaer, Hartman & Skaer 2.
22-28- 5 Crawley, Shawver & Sutter 1.
4-23- 3 Wetschenski, Glasco & Big Harvey 3.
7-24- 2 Abbey, Derby Oil 1.

Shut Down

26-23- 7 Sturgeon, A. W. Clark et al 1.
7-26- 7 Demoure, Cascade Oil 3.
20-27- 4 Clark, Empire G. & F. 2.
33-27- 7 Cleary, Baker et al 1.
22-28- 6 Pettit, John Sharp 1.
30-28- 6 Holland, Neiman et al 1.
17-28- 7 Everton, Dutton & Morgan 1.
21-29- 6 Baker, Tobin et al 1.
5-29- 7 Buzzard, Tobin et al 1.
23-29- 5 Burch, Bettfort et al 1.
10-27- 3 Long, Faulders & Ralston 1.
2-29- 2 McFleming, Higgens et al 1.
Rigs, 6; wells drilling, 19; total, 25.

GREENWOOD-WOODSON COUNTIES

Rigs

7-25-15 Young, Orlando Pet. 2.
27-22-13 Clark, R. G. Gillespie 1.
34-22-13 Eslinger, Theta Oil 8.
21-23-13 Jones, R. G. Gillespie 5.
23-23-13 Hesler, Dresser Oil 7.
19-22-11 Harris, Empire G. & F.
23-23-10 Allen, Mid-Kansas O. & G. 4, 15.
24-23-10 Burkett, The Texas Co. 1.
29-23-10 Thrall, Mission Oil 16, 27.
Thrall, Empire G. & F. 4.
Thrall, Roth & W. Phillips 2.
32-23-10 Thrall, Mission Oil 22, 23, 24, 25, 26.
McKee, Phillips Pet. 3, 4.
5-23-11 Seely, Tidal Oil 7.
8-23-11 Hillyard, Omar O. & G. 3.
14-24- 9 Agard, Bason et al 2.
34-24- 9 Nixon, Gypsy Oil 3.
3-25- 9 Dibert, Polhamus et al 4, 5.
4-25- 9 Henley, Pure Oil 3.
30-25- 9 Moss, Derby Oil 9.
22-22-13 Young, R. G. Gillespie 1.

Wells Drilling

27-23-13 Pinon, Cosden O. & G. 2.
25-21-10 C. A. Gentles 1.
31-22-10 Mathews, D. A. Weiss et al 1.
22-21-11 Shirley, Byers & Gordon 1.
18-22-11 Clopton, Cosden O. & G. 1.
22-23-10 Scott, Mission Oil 2.
8-23-11 Oliver, Pulaski Oil 1.
4-24-10 Breikreitz, Orlando Pet. 1.
32-24-10 Lockwood, Russell et al 1.
8-28-11 Town Lot, Clark et al 2.
36-22- 9 Leedy, Rogers et al 1.
15-24- 8 Hancock, Sharpless & Stark 1.
26-24- 9 Grey, Polhamus & Allen 2.
4-22-10 Pixlee, Pixlee et al 3.

Shut Down

24-24- 9 Moore, Golman et al 1.
4-25- 9 Henley, Pure Oil 1.
19-25- 9 Ladd, Mid-Kansas O. & G. 2.
29-25- 9 Ladd, Griggs et al 1.
9-26- 8 Blankenship, Cressler Oil 4.
3-27- 8 Taylor, Haverhill Pet. 1.
9-23-12 Cox, Shawver & Wilt 1.
15-23-13 Shadel, Ralco Oil 5.
Howell, Shaffer Oil 8.
11-24-12 Dalton, Franklin Oil 13, 14.
5-25-13 Gilroy, International Dev. 1.
5-22-10 Pixlee, Kreer et al 1.
Pixlee, Pixlee et al 3.
27-22-10 Brown, Brinn & Nathan 1.
34-22-10 Barnard, Rhodes & Able 1.
27-22-11 Wick, National Ref. 7.
5-23-11 Seely, Empire G. & F. 7.
Seely, Fisher et al 11.
13-24-10 Youssi, Brown & Rogers 1.
23-24-10 Edwards, Edwards et al 1.
Edwards, Miller 1.
13-24-11 Ott, Hutton & Ragan 1.
24-25-11 Bolinger, Forrester 1.
28-25-11 Bookover, J. B. Jones 1.
Rigs, 27; wells drilling, 40; total, 67.

MARION COUNTY

Rigs

20-21- 4 Reamy, National Ref. 12.
18-21- 6 Freeley, Robinson et al 9.
5-22- 4 Townsend, Watchorn O. & G. 34.

Wells Drilling

5-22- 4 Townsend, Watchorn O. & G. 35.
Rigs, 3; wells drilling, 1; total, 4.

MISCELLANEOUS

Rigs

Lyon County—
13-21-10 Schrader, Super-Six Oil 1.
36-21-10 Harriott, Gentles et al 1.
20-20-12 Miller, Tatlock et al 1.
Morris County—
3-14- 7 Renier, Northern Oil 1.
Shawnee County—
34-10-15 Worley, McKnight 1.
Coffey County—
33-20-15 Andrews, Sunbeam Pet. 1.
Pottowatomie County—
17- 9-12 Stewart, Crawford et al 1.
31- 9-12 Greshaver, Crawford et al 1.
Cowley County—
17-32- 6 Sheilds, Southwestern Pet. 1.
33-30- 7 Simmons, G. E. Scott 1.

Wells Drilling and Shut Down
(Shut Down Wells Indicated by *)

Cowley County—
15-30- 4 Newton, Elwell, S. & S. 1.
21-34- 7 McGill, Phillips Pet. 2.
19-34- 8 Wilson, Waite Phillips Pet. 1.
35-34- 5 Sterling, Mid-West & Gulf 1.
20-33- 3 Johnson, Hill & Waite Phillips 1
7-32- 4 Biddle, Arkansas Fuel 4.
25-32- 5 Malt, S. H. E. Oil 1.
5-30- 3 Parriott, Reynolds & McKimms 1
7-31- 8 Hiatt, Ramsey & Lloyd 1*.
32-31- 4 Brasher, Brown Bros. 1*.
25-32- 4 Gelks, Boggs et al 1.
20-31- 8 Kelly, Schroeder & White 1*.
14-30- 4 Magnuson, Cassoday Oil 2, 4.
5-30- 5 Gill, U. S. Texas 1.
35-30- 5 Wray, Rogers Bros. 1.
Coffey County—
22-21-13 Smith, Pulaski & Simmons 1.
29-20-13 Milner, Waite Phillips 1.
24-20-13 Unknown, Smith et al 1.
12-20-13 Martin, Addison et al 1*.
Lyon County—
14-20-12 Mills, Addison et al 1.
16-20-11 Cowan, Empire G. & F. 1.
Morris County—
17-17- 9 Chase, Fisher et al 1*
12-15- 6 Burton, Northern Oil 1*.
30-13- 6 Foster, Marshall et al 1*.
Reno County—
20-26-7w Unknown, Hayes & Arnold 1.
28-25--6w Unknown, Hayes et al 1.
Harper County—
24-34-6w Unknown, Alcorn Oil 1.
35-25-5w Sterling, Midwest Pet. 1*.
Finney County—
4-24-33w Unknown, Shouse et al 1.
33-21-30w Ladd, Garden City Oil 1.
Seward County—
34-34-34w Wood, Defender O. & G. 1.
20-33-32w Seely, Seward Oil 1*.
Comanche County—
11-32-16w Roberts, Inter Sea Service 1*.
Kingman County—
24-27-7w Garber, Hayes et al 1*.
Barton County—
22-18-13w Everleigh, Mountain States 1*.
27-18-12 Sooy, Cheyenne Oil 1*.
Dickinson County—
34-11- 4 Dana, Marshall et al 1*.
Ellsworth County—
21-15-6w Sheridan, Keys et al 1.
Wabaunsee County—
26-10- 6 Marks, O'Neil et al 1.
Clay County—
21- 9- 4 Unknown, Skow Bros. 1.
Lincoln County—
20-10-11w Darman, Delhi Oil 1*.
Pottawatomie County—
11-10-12 St. Mary's Crawford et al 1*.
4-10-12 Doyle, Crawford & Jennings 1*.
Sedgwick County—
26-26-1w Alex, Royles & Reagan 1.
30-29-3w Robinson, Robinson et al 1.
Sumner County—
9-23-1e Miller, Dillard Bros. 1.
13-33-2e Turpin, Brady Bros. 1.
34-33-2e Judd, Plateau Oil 1.
33-32-2e Young, Frantz et al 1.
13-31-2e Stout, S. H. E. Oil 1.
16-30-1w Hitchcock, Champlin Ref. 1.
Riley County—
24-10- 6 Marks, O'Neil et al 1*.
McPherson County—
34-18-1w Wain, Wright Oil 1*.
Washington County—
16- 2- 1 Unknown, Mitchell O. & G. 1.
Trego County—
5-11-24w Welch, Keys Pet. 2*.
5-11-25w Polen, Cantrell et al 1*.
Osborne County—
34-10-15w Worley, McKnight et al 1.
Republic County—
22- 2- 1w Walker, Mitchell O. & G. 1*
Rigs, 10; wells drilling, 60; total, 70

EAST CENTRAL TEXAS

Summary of Field Operations

	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Limestone	0	0	0	2	22	24	
Navarro	127	331,020	4	0	41	165	206
Miscl.	0	0	0	11	68	79	
Ttl. Sept.	127	331,020	4	0	54	255	309
Ttl. Aug.	75	203,724	6	0	80	241	321
Difference	52	127,296	2	0	26	14	12

WELLS COMPLETED
NAVARRO COUNTY

Powell Field—
Blumrosen, Humble O. & R. 4..... 150
Christian, Hunter et al 2 200
Christian, Hunter et al 3 1000
Springfield, Sun Co. 2 ..... dry
Burke, U. S. Tex Oil Co. 4 200
Burke, Witherspoon et al 3 400
Burke, Witherspoon et al 4 300
Burke, Witherspoon et al 2 2800
Springfield, Hoover & Thompson 2.... 150

Irvine, Atlantic O. P. Co. 4-A ..... abd
Irvine, Atlantic O. P. Co. 1-B 8000
Irvine, Atlantic O. P. Co. 2-B 2200
Irvine, Atlantic O. P. Co. 3-B 3500
Irvine, Atlantic O. P. Co. 4-B 2000
Irvine, Atlantic O. P. Co. 7-B 1500
Irvine, Atlantic O. P. Co. 9-B 1200
Irvine, Atlantic O. P. Co. 11-B 350
Irvine, Atlantic O. P. Co. 13-B 4500
Irvine-Gentry, Bass et al 1 400
McKie, Witherspoon, Gulf Prod. 2 6000
McKie-Witherspoon, Gulf Prod. Co. 6.. 120
McKie-Witherspoon, Gulf Prod. Co. 8.. 400
McKie, Hughes Oil 13 65
Gentry, Humble O. & R. 2-A 8000
Gentry, Humble O. & R. 4-A 3000
Gentry, Humble O. & R. 5-A 750
Gentry, Humble O. & R. 6-A 2500
Gentry, Humble O. & R. 9-A 1200
Gentry, Humble O. & R. 2-B 3000
Irvine, Humble O. & R. 2-C 7500
Irvine, Humble O. & R. 3-C 3200
Irvine Humble O. & R. 6-C 4500
Irvine, Humble O. & R. 7-C 3000
Irvine, Humble O. & R. 9-C 300
Kent, Humble O. & R. 1 2200
Kent, Humble O. & R. 4 2400
Kent, Humble O. & R. 3 12,000
McKie, Humble O. & R. 1-B 2000
McKie, Humble O. & R. 3-B 700
McKie, Humble O. & R. 4-B 750
McKie, Humble O. & R. 4 75
McKie, Humble O. & R. 5 ..... dry
McKie, Humble O. & R. 7 ..... abd
McKie, Humble O. & R. 6 ..... abd
McKie, Humphreys Oil Co. 14 1500
McKie, Humphreys Oil Co. 16 4500
McKie, Humphreys Oil Co. 18 500
McKie, Humphreys Oil Co. 19 1000
McKie, Humphreys Oil Co. 20 300
McKie, Humphreys Oil Co. 21 1500
McKie, Humphreys Oil Co. 22 4000
McKie Humphreys Oil Co. 26 200
McKie, Humphreys Oil Co. 27 200
McKie, Humphreys Oil Co. 29 300
McKie, Humphreys Oil Co. 31 1200
McKie, Humphreys Oil Co. 32 1500
McKie, Humphreys Oil Co. 33 4000
McKie, Humphreys Oil Co. 34 500
McKie, Humphreys Oil Co. 35 4500
McKie, Humphreys Oil Co. 36 3500
McKie, Humphreys Oil Co. 37 3500
McKie, Humphreys Oil Co. 38 1000
McKie, Humphreys Oil Co. 39 1500
Gentry, Kirby Pet. 1 3000
Gentry, Kirby Pet. 3 3200
Gentry, Kirby Pet. 4 200
Gentry, Kirby Pet. 5 5300
Gentry, Kirby Pet. 6 2500
Gentry, Kirby Pet. 6 2500
Gentry, Kirby Pet. 7 2500
Chapman, McMan Oil Co. 5 200
Chapman McMan Oil Co. 7 1500
Chapman, McMan Oil Co. 8 600
McKie, Roxana Pet. 3-A 2500
McKie, Roxana Pet. 4 85
McKie, Roxana Pet. 7 100
McKie, Roxana Pet. 10 200
McKie, Roxana Pet. 1-A 1100
Irvine, Roxana Pet. 1 ..... dry
Kent, Sun Oil Co. 150
Gentry, Skelly Oil 1 300
McKie, Texas Co. 200
McKie, Texas Co. 4 125
McKie, Texas Co. 6 300
McKie, Texas Co. 7 200
McKie, Texas Co. 8 250
Franclow, Beeler et al 1 ..... dry
Murchison, Gulf Prod. 1 4800
Brown, Humble O. & R. 1 1200
Davis, Humble O. & R. 1 5000
Humphreys, Humble O. & R. 1 1200
Humphreys Humble O. & R. 2 4500
Mrs. Walker, Humble O. & R. 1.....2400
Mrs. Walker, Humble O. & R. 2.....1500
Ramsey, Tidal Oil 5-A 6800
Brown, Kirby Pet. 1 3000
Ramsey, U. S. Tex Oil Co. 3 1200
Ramsey, E. L. Smith & Co. 3 7500
Ramsey, E. L. Smith & Co. 4 5600
Kent, Humble O. & R. 5 2000
Kent, Humble O. & R. 9 4500
Irvine, Humble O. & R. 4-C 6500
Ramsey, Humble O. & R. 1-A 4500
Ramsey, Humble O. & R. 3-A 2400
Ramsey, Humble O. & R. 1-B 6300
Ramsey, Humble O. & R. 5-B 4500
Ramsey, Humble O. & R. 3-B 2500
Smith, Gulf Prod. Co. 3 3500
Smith, Gulf Prod. 4 3500
Smith, Gulf Prod. Co. 1 9500
R. I. Kent, Humphreys Oil Co. 1 5000
R. I. Kent, Humphreys Oil Co. 2 3500
Kent, New Domain Oil Co. 1 1200
Ramsey, Skelly Oil Co. 1 4500
Ramsey, Tidal Oil Co. 2-A 4500
Ramsey, Tidal Oil Co. 3-A 4000
Ramsey, Tidal Oil Co. 6-A 6500
Ramsey, Tidal Oil Co. 1-B 11000
Ramsey, Tidal Oil Co. 2-B 5300
Ramsey, Tidal Oil Co. 3-B 5000
Ramsey, Tidal Oil Co. 5-B 3500
Ramsey, Tidal Oil Co. 6-B 3000
Thompson, Tidal Oil Co. 1 2500
Thompson, Tidal Oil Co. 3 1200
I. T. Kent, Texas Co. 1 8000
I. T. Kent, Texas Co. 2 6000
I. T. Kent, Texas Co. 3 4500
I. T. Kent, Texas Co. 7 3000
I. T. Kent, Texas Co. 10 6200

Currie District—
Morrow, Atlantic O. P. Co. 1 300

Wells completed 127
Production 331,020
Dry 4

NAVARRO COUNTY

Rigs

Fair, Humphreys Oil Co. 2.
Burke, Witherspoon et al 7, 8.
G. Kent, Humble O. & R. 12.
McKie, Humphreys Oil Co. 46, 55.
McKie, Roxana Pet. Corp. 9-A, 10-A.
Davis, Humble O. & R. 4, 5, 6, 7.
Flemming, Humble O. & R. 1-A, 2-A, 3-A.
Flemming, Humble O. & R. 1-B, 2-B.
Humphreys, Humble O. & R. 8, 10, 11, 12.
Ramsey, Humble O. & R. 7-A, 8-A, 9-A.
Walker, Humble O. & R. 5, 6, 7, 8.
G. Kent, G. Kent 2.
Fleming, Texas Co. 2, 3, 4.
Thompson, Tidal Oil Co., 4, 5.
Kent, Texas Co. 13.
Barron, Simms Oil Co. 1.
Harwood, Tidal Oil Co. 1.
Keith, Smith Oil Co. 1.
Phillips, Tidal Oil 5.

Wells Drilling

Vinson, Seaport Pet. 2.
Springfield, Buchner et al 1.
Springfield, Cosden O. & G. 1, 3.
Christian, Cranfil & Jones 1.
Christian, Farrish et al 1.
Springfield, Fourth Night Dev. Co. 1.
Springfield, Calloway Oil Co. 1.
Christian Hardison Elkins 2.
Springfield, Love et al 1.
Christian, McMahon et al 1.
Chapman, McMan Oil 4, 5.
Blumrosen, Roxana Pet. 4.
Blumrosen, Simms Oil 2.
Fair, Taylor et al 1.
Burke, Witherspoon Oil 6.
Irvine, Atl. O. P. Co. 6-B, 8-B, 10-B, 12-B, 15-B.
Irvine, Bass et al 2, 3.
McKie, Gulf Pro. 1.
Gentry, Humble O. & R. 8-A. 10-A, 11-A.
Gentry, Humble O. & R. 3-B.
Irvine, Humble O. & R. 8-C, 10-C, 11-C.
G. Kent, Humble O. & R. 2-B, 5-B, 6-B, 7-B, 8-B.
McKie, Humphreys Oil 24, 25, 28, 30, 40, 41, 42, 44, 43, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54.
McKie, Kirby Pet. 2, 3.
Chapman, McMan Oil C. 9, 10.
McKie, Roxana Pet. 0-A, 5-A. 6-A, 7-A, 8-A, 2-A.
Irvine, Magnolia Pet. 2.
Barry, Gulf Pro. 1.
Bush Gulf Pro. 1.
Murchison, Gulf Pro. 2, 3, 4, 7, 8.
Brown, Humble O. & R. 2, 3, 4, 5, 6.
Carf, Humble O. & R. 1, 2.
Davis, Humble O. & R. 2, 3.
Humphreys, Humble O. & R. 3, 5, 6, 4, 7, 9.
Murchison, Humble O. & R. 1, 2, 3.
Walker, Humble O. & R. 4.
Ramsey, Humble O. & R. 4-B.
G. Kent, Humble O. & R. 1.
Ramsey, Tidal Oil & Buttram 7-A.
Phillips, Tidal Oil & Buttram 1, 2, 3.
Brown, Kirby Pet. 2, 3, 4, 5, 6.
Fleming, Texas Co. 2, 3 4.
Kent, New Domain Oil 5, 6.
Clements, Millerman & Dorney 1.
Ramsey, U. S. Tex. Oil Co. 2, 4.
Ramsey, E. L. Smith Oil Co. 2.
Thompson, Atlantic O. P. Co. 1.
Kent, Humble O. & R. 6, 7, 10.
Kent, Humble O. & R. 5-C.
Ramsey, Humble O. & R. 2-A, 4-A. 6-A.
Ramsey, Humble O. & R. 6-B, 7-B, 8-B, 9-B.
Walker, Humble O. & R. 3.
Smith, Gulf Pro. Co. 2, 3.
R. I Kent, Humphreys Oil Co., 3, 4, 5, 6, 7, 8.
Ramsey, Skelly Oil 2, 3.
Ramsey, Tidal Oil & Buttram 4-A, [illegible]-A.
Ramsey, Tidal Oil & Buttram 4-B, [illegible]-B.
Thompson, Tidal Oil 2 6.
Kent, Texas Co. 5, 6, 8, 9, 11, 12.
Kellum, Atlantic O. P. Co. 1.
Barron, Gulf Pro. Co. 1.
Barron, Sims Oil 1.
Mrs. Crews, Tidal Oil Co. & Buttram.
Phillips, Tidal Oil Co. & Buttram 4.
Harwood, Tidal Oil Co. & Buttram 1.
Keith, Smith Oil Co. 1.
Smith, McGood Oil 1.

Currie District—
Bounds, Humphreys Oil 8.
J. V. Bounds, Cosden O. & G. Co. 2.
Morrow, Hughes Dev. Co. 3.
Longbotham, Snowden & McSweeney. 7, 8, 9.
Nash, Sun Oil Co. 1.
Morrow, Texas Co. 1.
Morrow, Trapshooter Reilly 1.
Bounds, Newblock Oil Co. 1.
Rigs, 41; wells drilling 165; total, 206

LIMESTONE COUNTY

Rigs

Tuloma, Humphreys Oil Co. 24.
Reid, Humphreys Oil Co. 10.

Wells Drilling and Shut Down

Adamson, Humphreys Oil Co. 8.
Bethelsen, Humphreys Oil Co. 8.
Hayter, Humphreys Oil Co. 6, 10.
Kendrick, Humphreys Oil Co. A-1, 14.
Tuloma, Humphreys Oil Co. 22, 23.
Arnott, J. F. Smith 1.
Priddy, Yoder et al 3.
Jordan, Grogan et al 1.
Bend Perrian Trustees 2.
Cook, Mexia Red Seal 1.
Oliver, Yoder et al 1.
Cook, Mexia Red Seal 1.
Stoker, Texas Co. 3.
Welch, Humphreys Oil 3.
Gill, Iron Clad Oil 1.
Brown, Humphreys Oil 1.
Bassett, Transcontinental Oil 1.
Head, Tex Rickard 1.
Rigs, 2; wells drilling, 22; total, 24.

MISCELLANEOUS

Rigs

Bowie County—
Hoska, North Boston O. & G. Co. 1.
Chalk, O'Bannon Bros. 1.

Milam County—
Ashley, Milano Pluet 1.

Raines County—
Hunt, Lovewell Oil 1.

Smith County—
White, Whittaker & Maddock 1.

Anderson County—
Turner, Hughes et al 1.

Cass County—
Spears, Bankers Trust 1.
Caster Gibbs Pet. 1.

Falls County—
Allen, Southern Rose O. & G. 1.

Henderson County—
Kade, Ben Crow Oil 1.
Fully, Mitcham et al 1.

Wells Drilling and Shut Down

Freestone County—
Smith, Pope et al 1.
Bounds, Smith et al.
Knight, O. K. O. & G. 1.
Bounds, Trapshooter Reilly 1.

Henderson County—
Wood, F. Haynes 1.
Johnson, Pine Grove Oil 1.
Ziensendanger, Mexia Henderson Oil 1.
Smith-Logan, Union Pet. 1.

Hunt County—
Hays, Tri-Cities O. & G. 1.
Miller, McPhail O. & G. 1.

Kaufman County—
Carlisle, Roscie et al & T. P. C. & O. 1.
Porter, Trapshooter Reilly Oil 1.

Leon County—
Bolden, Leon County Oil Dev. 1.
McKinnon, Kechi O. & G. 2.
Smith, Deep Springs Oil.
Carrington, Mexia Marquet Oil 1.

Milam County—
Posey, Guberson et al 1.
Reed, Rosebud Mexia 1.
Lotters, F. C. Nelson 1.
Stark, Williams & Hall 1.
Bremond, Twin City O. D. 1.

McLennan County—
Shelton, Tudor Oil 1.
Schnecker, Mexia Central Oil 1.
Halloway, Mexia Commonwealth Pet. 1.

Anderson County—
Parker, J. F. Williams et al 2.
Brooks & Auld, Rosser Pet. 1.
Manning Plant, Palestine Oil 1.

Bowie County—
Parkley, Baldy Springs Oil 1.
Taylor, Tri-State Oil 1.

Cass County—
Evans, Caldwell et al 1.
Crew, Simms Oil 1.

Cherokee County—
Clapp, Cellington Drg. 1.

Dallas County—
Grimes, Carnahan Drg. 1.
Gracey, Dallas Pet. & Dev. 1.
Davis It's In Dallas Oil 1.
Mitchell, It's In Dallas Oil 1.
Eubanks, W. F. Nabors et al 1.

Ellis County—
Hoesmer, Mexia Tri State Co. 1.

Falls County—
Price, Balto-Tex. Oil 1.
Jennings, Inland Oil 1.
Peters, Grover Edwards 1.
Peacock, High Banks Oil 1.
Harlan, Texola Pet. 1.
Clark, Pearce Pet. 1.
Covington, Mayflower Oil 1.
Brown, Edwards et al 1.

Red River County—
Dniveddie, Brewster Haynes 1.
Simmons, Clarksville Texas Oil 1.
Arnold, Isabelle Gibbons Co. 1.
Antone, Johnson Pet. Synd. 1.
Wortham, O'Bannon Bros. 1.
Garland, Riggins O. & G. 1.

Robertson County—
Holloway, Campbell et al 1.
Walker, Kentucky-Texas Oil 1.
Stephens, Texola Oil 1.

Raines County—
Vorley Jeffries Oil 1.

Smith County—
Sykes, Rainbow Oil 1.
Carey, North Texas Oil 1.
Phillips, Apex Oil 1.

Titus County—
Oregon, Bosler et al 1.

Van Zandt County—
Jones, Mexia Drg. 1.
Dunbar, Terrell Oil 1.
Rice, Transcontinental Oil 1.

Williamson County—
Ganzar, Armadillo Oil 1.
Stiles, Magnolia Pet. 1.
Sebran, McNeil & McDowell 1.
Koonson, United Oil Workers 1.

Wood County—
Adrian, Golden Oil 1.
Senter, Texas O. & M. 1.
Rigs, 11; wells drilling, 68, total 79.

NORTH CENTRAL TEXAS

Summary of Completions

District—	Comp.	Prod.	Dry	Gas
Wichita	21	214	14	0
Burkburnett	9	545	4	0
Eastland	11	230	5	2
Stephens	4	940	1	3
Young	3	73	1	0
Archer	50	4,464	17	0
Wildcats	24	1,318	9	1
Total Sept.	122	7,784	51	6
Total Aug.	264	11,400	114	12
Difference	132	3,616	63	6

Summary of New Work

District—	Rigs	Drg.	Total
Wichita	8	24	32
Burkburnett	3	14	17
Eastland	6	22	28
Stephens	10	19	29
Young	2	19	21
Archer	11	49	60
Wildcats	11	71	82
Total Sept.	51	218	269
Total Aug.	59	214	273
Difference	8	4	4

WICHITA AND WILBARGER COUNTIES

Completions

Jennings, Gulf Prod. Co. 7 ..... dry
Nance, Ryan Pet. Co. 10 45
Martin, Maer et al 1 ..... dry
Daume, Stedham et al 1..... dry
Cooper, Woods et al 1 ..... dry
Waggoner, Cline et al 1 ..... dry
King, King et al 1 ..... dry
Waggoner, Laughlin et al 1 ..... dry
Waggoner, Number Nine O. Co. 3 ..... dry
Womack, Wirt Franklin 1 ..... dry
Douglas, Forrest Oil Co. 10 4
Rogers, Magnolia Pet. Co. 14 ..... dry
Francis-Summer, Magnolia Pet. Co. 44 50
Waggoner, Magnolia Pet. Co. 3-A..... 8
Waggoner, Magnolia Pet. Co. 27-A..... 15
Waggoner, Magnolia Pet. Co. 4-B..... dry
Burnett, The Texhoma O. & R. Co. 2-A 85
Vaughn, Heard Bros. 1 ..... dry
Waggoner, Number Nine O. Co. 4 .... dry
Douglas, Magnolia Pet. Co. 5 7
Burnett, Rotary Drilling Co. 1 ..... dry

Wells completed 21
Production 214
Dry 14

BURKBURNETT

Completions

Hirschi, The Sun Oil Co. 19 200
Hirschi, The Sun Oil Co. 20 250
Colony, Magnolia Pet. Co. 7 ..... dry
Lindsey, Humble O. & R. Co. 1..... dry
Langford, Langford et al 6..... 45
Roller, Griffing Prod. Co. 3 30
Roller, Robinson Oil Co. 4 20
Eads, Ft. Dearborn Oil Co. 4-B..... dry
Potter, Cara Pet. Co. 1 ..... dry

Wells completed 8
Production 543
Dry 4

ARCHER COUNTY

Completions

Carter Bros., The Texas Co. 2 132
Parrish, Bass et al 1 35
Mrs. Carter, Bridwell et al 1 11
Mrs. Carter, Bridwell et al 2..... 130
Wilson, Chenault et al 1 150
Turbeville, Halmack O. Co. 1 ..... dry
Wilson, Hinley et al 1-B 200
Mrs. Carter, Hunter et al 1..... dry
Ferguson, Lone Wolf Oil Co. 8..... 55
Mrs. Carter, Maer and others 3 80
Mrs. Carter, Maer et al 4 162
Parrish, Parker et al 1 ..... dry
Parrish, Roberts et al 3 300
Wilmot, Rotary Dlg. Co. 5 230
Adae, Richardson et al 1 ..... dry
Carter Bros., Sunshine State O. & R. Co. 3 500
Griffin, Sun Oil Co. 1 ..... dry
Wilmot, Sweatt and others 3 ..... dry
Herron, Taylor Bros. 1 15
Wilson, West et al 1 ..... dry
Carter, Gwynn et al 3 150
K. & K., Humble O. & R. Co., 6-B.... 15
Edwards, Lanning et al 1 ..... dry
Winters, Mascho et al 1 ..... dry
Parrish, The Oil Inv. Co. 1 ..... dry
Wilson, Pet. Prod. Co., 3-C ..... dry
K. & K. Chappell et al 2-B 60
Mankins, Simms Oil Corp. 1 8
Carter Bros., Staley et al 1 225
Carter Bros., Sunshine State O. & R. Co. 2. 200
Parrish, Texhoma O. & R. Co. 1..... dry
Ferguson, Tidal Oil Co. 9 ..... dry
K. & K., Dr. Wallace 7 75
K. & K., American Ref. Co. 1-C..... dry
Mrs. Carter, Bridwell et al 3 15
Wilson, Griswold O. Corp. 7 50
Ambercrombie, Hudspeth et al 1..... dry
Mrs. Carter, Staley et al 1 125
Carter Bros., Sunshine State O. & R. Co. 4 250
Carter Bros., Sunshine State O. & R. Co., and others, 4 300
Wilson, Texhoma O. & R. Co. 3 65
Carter Bros., The Texas Co. 3 350
Wilson, Chenault et al 1-B ..... dry
White, Gould et al 1 ..... dry
Wilson, Hinley et al 1 ..... dry
Carter, Maer et al 2 300
Wilson, Mahlstedt-Mook 1 40
Wilson, Pet. Prod. Co. 4-C..... 125
Wilson, Texhoma O. & R. Co. 1-B ..... dry
K. & K., White Oil Corp. 10 20

Wells completed 50
Production 4464
Dry 17

STEPHENS COUNTY

Completions

Brown, Liner et al 1 65
Todd, The Sun Co., 1 ..... dry
Heathley, The Texas Co., 5 855
Jones, Republic Prod. Co. 3 50

Wells completed 4
Production 940
Dry 1

EASTLAND COUNTY

Completions

Lassiter, Cunningham et al 1 ..... dry
Miller, Eby et al 4 75
Crowley, Kirk & Brewer 1 ..... dry
Fanning, Martin et al 1 ..... gas
Fields, Atlantic O. Prod. Co. 10 ..... dry
Miller, Harrison et al 1 15
McClarney, Teatsorth et al 1 ..... gas
Williamson, Urbin et al 1 ..... dry
Lieske, Burleson et al 1 ..... dry
Westmoreland, Brothers O. Co. 1 10
Merriil, Humble O. & R. 2 125

Wells completed 11
Production 230
Gas 2
Dry 1

YOUNG COUNTY

Completions

Hankins, Bullington et al 2 8
Morgan, Norton et al 1 ..... dry
Bashara, Bashara O. Co. 1 65

Wells completed 1
Production 73
Dry 1

WILDCAT COMPLETIONS

Mitchell County—
T. & P., Underwriters P. & R. Co. 4... 200

Brown County—
Bashara, Maher Bros. 1 ..... dry
Harris, Slick et al 1 40

Clay County—
Edrington, Lone Star Gas Co. 5 ..... dry
Saner, Knox Dev. Co., 2 ..... dry
Worsham, Gulf Prod. Co. 2 ..... dry
Stephenson, Humble O. & R. Co. 1.... dry
Johnson, Texland O Co., 6 3

Coleman County—
Babbington, Senter et al 5 ..... dry

Palo Pinto County—
Stewart, Lewis Oil Co. 1 ..... dry
Lane, Transcontinental Oil Co. 9 .... dry
Costello, Skelly Oil Co. 1 50
W. L. Costello, Skelly Oil Co. 50

Shackelford County—
Lynch, Landreth Oil Co. 1 125
Witty, Dunning et al 1 225
Dennis, Elliott et al 3..... 10
Jenkins, Elliott et al 7 5
Owens, Godley Oil Co. 26 10
Broadfoot, Hogan et al 4 10
Broadfoot, Hogan et al 5 10

Callahan County—
Isenhour, Murray et al 1 20
Wilson, Miller Bros., 3 20

Acker, Moore et al 2 587
Potter County—
Bivens, The Amarillo Oil Co. 4 ..... gas

Wells completed 24
Production 1318
Gas 1
Gas production 13,000,000
Dry 9

WICHITA AND WILBARGER COUNTIES

Rigs

Cross, Staley et al 1.
Burnett, Empire Gas & Fuel Co. 69.
Fassett, Knight et al 1.
Waggoner, Magnolia Pet. Co. 26-A.
Burnett, Perkins et al 1.
Burnett, Texhoma O. & R. Co. 3-A.
Ft. Worth & Denver R. R., Greenwood et al 1.
K. & K., Carter and others 2.

Wells Drilling

Waggoner, The Texas Co., 282, 283, 284.
Douglas, Buffalo Texas Co. 3-D.
Zeiset, Holcomb et al 1.
Tuttle, Magnolia Pet. Co. 1.
Ancell, Apperson et al 1.
Ancell, Finley et al 2.
Waggoner, Magnolia Pet. Co. 1-C, 1.
Waggoner, Noel et al 1.
Nance, Ryan Pet. Co. 11.
Burnett, Texhoma O. & R. Co. 2-B.
Waggoner, Texhoma O. & R. Co. 1-H, 9-F.
Lauenslager, Lucky Hill O. Co. 1.
Corder, Byrne et al 1.
King, Electra Gulf Oil Co. 1.
McCaleb, Robinson et al 1.
Waggoner, Noble Oil Co. 1.
Forrester, Pigg et al 1.
Stephenson, South Vernon Oil Co. 1.
Waggoner, Mike Sullivan 1.
Womack, Wirt Franklin 1-A.
Rigs, 8; wells drilling, 24; total, 32.

BURKBURNETT-HIRSCHI

Rigs

Hirschi, Sun Oil Co. 21.
Hoffman, Fresno Oil Co. 1.
Roller, Robinson Oil Co. 5.

Wells Drilling

Ward & Todd, Clark et al 5-A.
Hewitt, Coleman Drilling Co. 1.
Hearn, Cooper et al 1.
Dale, Gulf Prod Co. 12.
Saunders, Hammond et al 1.
Langford, Langford et al 7.
Reilly, Magnolia Pet. Co. 95, 98, 99.
Holtzen, Magnolia Pet. Co. 6.
Foster, Pigg et al 1.
Hirschi, The Sun Oil Co. 22.
Beach, Bonner et al 3.
Potter, The Texas Co. 1.
Rigs, 3; wells drilling, 14; total, 17.

ARCHER COUNTY

Rigs

Martini, Armstrong et al 1.
Wilson, Barnes et al 1.
Wilmot, Bohler et al 1.
Richards, Clayton et al 2.
Hawkins, Collender et al 1.
Bridwell, Lynch et al 1.
Richardson, McGee Bros. 1.
Wilmot, Rotary Drilling Co. 4.
Miller, Sankley et al 1.
Wilson, Staley et al 1-C.
Carter Bros., Sunshine State O. & R. Co. 8.

Wells Drilling

Carter Bros., The Texas Co. 4, 5.
Wilson, Atlantic O. & P. Co. 1.
Wilson, Bell et al 1, 2.
Ferguson, Bower et al 2.
Carter, Bridwell et al 4, 5, 1.
Wilson, Bridwell et al 1.
Ferguson, Carter et al 2.
Wilson, Chenault et al 2-C, 2.
Richards, Clayton et al 2-B.
Ferguson, Dilday et al 1.
Wilson, Dickson et al 1.
Wilson, Featherstone et al 1-B.
Jackson, Ferguson et al 1.
Boone, Gatewood et al 1.
Carter, Gwynn et al 2.
Richardson, Hardly Able Oil Co. 1.
Mrs. Carter, Hawkins et al 2.
Carter Bros., Hawkins et al 1.
Wilson, Hinley et al 2.
Black, Hudspeth et al 1.
Wilson, Jetter et al 1.
Wilson, Kentucky Prod. Co. 1.
Parrish, Lane et al 1.
Mrs. Carter, Maer et al 5.

Wells Drilling

O'Donnell, Norton et al 1.
Wilmot, Payne et al 1, 2.
Wilson, Petroleum Prod. Co. 5-C.
Parrish, Roberts et al 4.
Wilmot, Sibley et al 4.
Wilson, Sixty-Six Oil Co. 1.
Carter Bros., Staley et al 2.
Mrs. Carter, Staley et al 2.
Parrish, Sunshine State O. & R. Co. 7.
Carter Bros., Sunshine State O. & R. Co., 3, 5, 6, 7.
Richardson, Swastika Oil Co. 7, 8.
Neil, Swastika Oil Co. 1.
Wilson, Verschoyle et al 1.
K. & K., Dr. Wallace 8.
Kunkle, Whitehead et al 1.
Rigs, 11; wells drilling, 49; total, 60.

YOUNG COUNTY

Rigs

Andrews, Donohue et al 1.
McClaren, Weekly et al 3.

Wells Drilling

Jones, Coleman et al 1.
Hockaday, Gulf Prod. Co. 2.
Bullock, Holcomb et al 1.
Sedden, Kouri et al 1.
Carter, McGuire et al 1.
Gibson, Mid-Kansas O. & G. Co. 1.
Moren, Mid-Kansas O. & G. Co. 1.
Hughes, Miller et al 2
Hightower, Mitchell et al 1.
Gildwell, Mutual Oil Co. 2.
Williams, Nash et al 1-B.
Scott, North Amer. Ref. Co. 1-B.
McBrayer, Owens Oil Co. 1.
Grubbs, Robinson et al 1.
Bower, Shamrock Oil Co. 2.
Carter, Snowden & McSweeney 1.
Stovall, Stovall et al 1.
Harrell, Texas Eureka Synd. 1.
Johnson, Whitehead et al 1.
Rigs, 2; wells drilling, 19; total, 21.

STEPHENS COUNTY

Rigs

Corbett, Cox Construction Co. 2.
Atkins, Prairie Oil & Gas 15.
Hill, Mid-Kansas Oil & Gas Co. 12.
Richardson, Mid-Kansas Oil & Gas Co. 3.
Williams, Spratt et al 1.
Martin, Townsend & Co. 2.
Walker, Magnolia Pet. Co. 4.
Boyett, Mahlstedt & Mook 1.
Davis, Scott et al 1.
Harrington, Swensondale Oil Co. 1.

Wells Drilling

Bascomb, A. B. Oil Assn. 1.
Cabbe, Critten et al 1.
Cruddington, Pierce et al 1.
Newell, Texas Pacific C. & O. Co. 9
Williams, Corbett et al 1.
Parks, Cotts et al 1.
Jones, Curry Pool Oil Co. 1.
Shipley, Foster et al 2-C.
Jones, Humble O. & R. Co. 6.
Wild, Humble O. & R. Co. 1.
Lee, Lacy et al 2.
Moore, Landreth Prod. Co. 1.
George, Magnolia Pet. Co. 2.
Rush, Magnolia Pet. Co. 12.
Bruce, Mahlstedt & Mook 1.
Davis, Pender Oil Co. 1.
Elliott, Swensondale Oil Co. 1.
Swenson, Swensondale Oil Co. 29.
Lee, T. & P. C. & O. Co. 1.
Rigs, 10; wells drilling, 19; total, 29.

EASTLAND COUNTY

Rigs

Steele, Clayton et al 1.
Rogers, Magnolia Pet. Co. 3.
Gilbert, Rosenfeldt et al 1.
Hatton, Clayton et al 1.
Harwood, Clayton et al 1.
Rio Bravo, Clayton et al 1.

Wells Drilling

Collins, Ablon et al 1.
Rogers, Brothers Oil Co. 2.
Allen, Donnelly Drilling Co. 1.
Miller, Eby et al 5.
Shugart, Gholson et al 1.
Shugart, Kirk & Brewer 2.
Hogg, Lone Star Gas Co. 2-A.
McMillan, Lone Star Gas Co. 1.
Edison, Magnolia Pet. Co. 2.
Ross, Magnolia Pet. Co. 3.
Harrell, Mid-Kansas O. & Gas Co. 5.
Harrell, Mook-Texas Co. 2.
Abernathy, Post Duke O. Co. 2.
Neville, Urban et al 1.
Walker Ref. Co., Wolfe et al 1.
Jones, Clayton et al 2.
Amis, Gordon Pet. Co. 1.
Ray, Gordon Pet. Co. 1.
Burnett, Rosenfeldt et al 1.
Ray, Stover et al 1.
Clark, The Texas Co. 1.
Brooks, Prairie O. & G. Co. 5.
Rigs, 6; wells drilling, 22; total, 28.

WILDCATS

Rigs

Shackelford County—
Lynch, Landreth Oil Co. 11, 14.

Wells Drilling

Lynch, Humble O. & R. Co. 1-B.
Poindexter, Humble O. & R. Co. 1-D.
Lynch, Landreth Prod. Co. 2.

Rigs

Brown County—
Armstrong, McCamey et al 1.
Strickland, Pennant O. & G. Co. 1.

Wells Drilling

Cleveland, Bailey et al 1.
Fomby, Carlton et al 1.
Prather, Gillette et al 3.
Newton, Slick et al 2.

Rigs

Palo Pinto County—
Hart, Ashe Synd. 3.
River Bed, Scott et al 2.

Wells Drilling

Morgan, Buckeye Pipe & Supply Co. 1.
Poer, Cunningham et al 1.
Conklin, Clark et al 1.
Dalton, Jack Dalton Oil Co. 3.
Boles, Moore, et al 1.
Robinson, Mutual Oil Co. 1.
Huey, Mutual Oil Co. 1.
Finch, Nelson Oil Co. 2.
Gray, Owens et al 1.
Slemmons, Pender Prod. Co. 1.
River Bed, Scott et al 1.
Thomas, Thomas et al 1.
Weldon, Zada-Belle Oil Co. 1.

Rigs

Mitchell County—
Morrison, Pet. Opr. Assn. 1.

Wells Drilling

Morrison, California Co. 1.
Richardson, California Co. 1.
Miller, California Co. 1.
Foster, Colo-Texas Pet. Co. 2.

Wells Drilling

Dallas County—
Kellerman et al 1.

Donnelly County—

Wells Drilling

Mooreman, The Swanson Oil Co. 1.

Wells Drilling

Gray County—
Morris, Holmes et al 1.
Saunders, The Texas Co. 1.

Wells Drilling

Hemphill County—
The Piney Oil Co. 1.

Rigs

Hutchinson County—
Johnson Bros., O'Guinn et al 1.
Bivens, Producers & Refiners Oil Co. 1-B.

Wells Drilling

Sandford, Coline Oil Co. 1.
Johnson Bros., Humphreys Oil Co. 1.
Johnson Bros., Montgomery et al 1.
Weatherley, Plains Oil Co. 1.

Wells Drilling

Potter County—
Masterson, Producers & Refiners Oil Co. 2.
Bivens, Producers & Refiners Oil Co. 2-A.

Wells Drilling

Wheeler County—
Davis Bros., Skelly Oil Co. 1.
Sheldon, Tyrell et al 1.
Williams, Whittington et al 1.

Wells Drilling

Reagan County—
University, Texon O. & L. Co. 3, 4.
Rigs, 11; wells drilling, 71; total, 82.

Wells Drilling

Mitchell County—
Morrison, Henry Reilly et al 1.
O'Neil, Sloan et al 1.
Morrison, Underwriters Prod. & Ref. Co. 5.
T. & P. Land Co., Underwriters Prod. & Ref. Co. 3.

Wells Drilling

Scurry County—
Moore, The Lou Tex Corp. 1.
Quinn, Camp Springs O. & G. Co. 1.

Wells Drilling

Baylor County—
Porter, Wurtz et al 1.

Wells Drilling

Clay County—
Hapgood, Dunning et al 1.
Carpenter, D'Yarmett et al 1.
Boddy, Gulf Prod. Co. 1-A.
Scott, Knox & Finley Dev. Co. 1.
Edrington, Lone Star Gas Co. 6, 7.
Miller, Lone Star Gas Co. 12, 13.
Myers, Nebraska O. & G. Co. 1.
Kuykendall, O'Neill et al 1.

Wells Drilling

Jack County—
Woodward, Duncan et al 1.
Humphreys, Dunn et al 1.

Wells Drilling

Montague County—
Gist, The Texas Co. 1-A.
Howard, The Texas Co. 1.
Beasley, Amerada Oil Co. 1-A.
Cooke, Comet Pet. Co. 1-A.
Benton, Gulf Prod. Co. 1.
Howard, Mascho Oil Co. 1.

Wells Drilling

Throckmorton County—
School Land, Ashcraft et al 1.

Rigs

Carson County—
Burnett, The Texas Co. 2, 3.

Wells Drilling

Burnett, The Texas Co. 1.
Armstrong, Culberson Bros. 1.
Burnett, Gulf Prod. Co. 3-A.
Sandford, Humphreys Oil Co. 1.
McConnell, Tipton, Stone et al 1.

N. LOUISIANA-ARKANSAS

Summary of Field Operations

Districts—	Comp.	Prod. Dry	Gas	Rigs	Drg.	Ttl.
Smackover District, Union Co.	85	26,650	15	0	40	80	120
Ouachita Co.	18	2,750	2	0	14	25	39
Stephens Dist. Columbia and Ouachita Counties	25	825	1	0	18	21	39
Arkansas Wildcats	11	100	9	1	16	23	39
Bellevue	12	510	2	0	5	6	11
Caddo	3	300	2	0	3	12	15
Claiborne	1	0	1	0	3	5	8
De Soto	0	0	0	0	0	4	4
Red River	1	0	1	0	0	4	4
La. Wildcats	18	0	5	13	13	48	61
Ttl. Sept.	174	31,135	38	14	112	228	340
Ttl. Aug.	236	55,200	46	24	122	277	399
Difference	62	24,065	8	10	10	49	59

UNION COUNTY, ARKANSAS

COMPLETIONS

3-16-15 Lyell, Amerada Pet. Co., 2.. 500
3-16-15 Lyell, Amerada Pet. Co., 3..5000
4-19-15 Traylor, Amer. Prod. Co., 1 50
11-16-15 J. J. Alphin, Ark. Nat. Gas Co., 1 150
17-16-15 Harrell, Ark. Pipe Line Co., 2 500
8-16-16 Bradford, Broderick & Calvert, 2 250
8-16-15 Murphy, Broderick & Calvert, 2 200
15-16-15 Murphy, Burch et al, 1..... 300
16-16-15 Cook, Chandler et al, 2..... 175
1-18-16 Fee, Constantin Oil & Ref. Co., 3 ..... dry
1-18-16 Martin, Constantin Oil & Ref. Co., 1 ..... dry
14-16-15 Giller, Crawford & Sebastian, 5 295
8-16-16 Childs, Crosby Synd., 1..... dry
18-17-14 Polk & Ezell, Daniels et al, 1 400
17-17-14 Moody, Detroit-Summerfield, 8 275
18-17-14 Polk & Ezell, Donoway Oil Co., 2 550
10-16-15 Lawton, Federal Pet. Co., 5..? 200
15-16-15 Wells, Federal Pet. Co., E-3.. 750
15-16-15 Wells, Federal Pet. Co., E-4.. 200
18-16-15 Young, George & Jones, 2.... 600
8-16-15 Braford, Givens & Rosser, 1. 250
11-16-15 Alphin, Gulf. Ref. Co., 5..... 500
8-16-15 J. Berry, Gulf Ref. Co., 3..... 100
5-16-15 Flenniken, Gulf Ref. Co., 8 .. 60
16-16-15 T. C. Goodwin, Gulf Ref. Co., 2 200
17-16-15 J. G. Murphy, Gulf Ref. Co., 2 90
9-16-15 T. C. Murphy, Gulf Ref. Co., 6 60
9-16-15 T. C. Murphy, Gulf Ref. Co., 7 45
9-16-15 T. C. Murphy, Gulf Ref. Co., 9 250
8-16-15 L. Werner, Gulf. Ref. Co., 9.. 90
8-16-15 L. Werner, Gulf Ref. Co., 10. 60
5-16-16 L. Werner, Gulf Ref. Co., 11. 75
3-16-15 Graves, Hickman et al, 5....2000
10-16-15 Giller, Hollyfield et al, 3.... 500
11-16-15 Giller, Hollyfield et al, 5.... 25
3-16-15 Miler, Houston Oil Co., 3.... 250
3-16-15 Flenniken, Humble Oil & Ref. Co., 1 1500
3-16-15 Flenniken, Humble Oil & Ref. Co., 2 800
7-16-15 J. E. Lawton, Humble Oil & Ref. Co., 1 600
3-16-15 Frank Murphy, Humble Oil & Ref. Co., 1 800
18-16-15 Smith, Humble Oil & Ref. Co., 2 350
20-16-15 Burns, Humphries Oil Co., 1. 35
17-16-15 Massey, Humphries Oil Co., 3. dry
9-16-15 J. E. Murphy, Imperial Oil & Gas Co., 1 40
6-16-15 Gaza, Kemp et al, 1..... dry
8-16-15 Bradford, Lege et al, 2 125
3-16-15 Roper, Livingston et al, 3.... 250
13-16-17 Camp, Magnolia Pet. Co., 1.. 70
17-17-14 Moody, Magnolia Pet. Co., 2. 25
3-16-15 Lyell, McFarland et al, 2....2000
3-16-15 Lyell, McFarland et al, 1..... 300
33-16-18 McRae, Miller et al, 1..... dry
29-17-14 Smith, Myerscough et al, 1.. 150
16-17-14 Allen, J. L. Nelson, 4..... 175
10-16-15 Ballard, Oil Op. Trust, 4.... 400
7-16-15 Murphy, Oil Op. Trust, 3.... 150
16-16-15 G. F. Murphy, Oil Op. Trust, 1 150
8-16-15 G. E. Murphy, Oil Op. Trust, 1 200
8-16-15 G. E. Murphy, Oil Op. Trust, 3 300
9-16-15 Palmer, H. W. Patterson, 1.. 5
14-16-15 Ballard, Waite Phillips, 2... 175
21-15-15 G. C. Murphy, Ramage et al, 1 200
21-16-15 G. E. Murphy, Roxana Pet. Co., A-1 100
5-16-16 C. L. Saxon, Rucker et al, 2.. dry
10-16-16 Crowder, Scroggins et al, 1.. dry
7-17-14 Lyon, Sheffield Oil Co., 1.... 175
11-16-15 Alphin, Standard Oil Co., of La., 4 200
10-16-15 W. M. Hardy, Stan. Oil Co., of La., 2 125
6-16-15 McClanahan, Standard Oil Co. of La., 3..... 400
3-16-15 Hays, Sun Co., 2..... 250
3-16-15 Hays, Sun Co., 3..... 200
21-16-15 Marie Alphin, The Texas Co., 3 75
9-16-16 Goodwin, Thraves et al, 2.... dry
9-16-15 Goodwin, Thraves et al, 3.... dry
9-16-16 Goodwin, Thraves et al, 4.... dry
9-16-16 Parnell, Thraves et al, 1..... dry
8-17-14 Moody, Unice et al, 1..... dry
10-16-15 Lawton, Vaughn & Gray, 1.. 150
18-17-14 Allen, Vitek Oil Co., 2..... 350
6-16-15 McClanahan, Vitek Oil Co., 4. 125
11-16-16 Hicks, Walton et al, 1..... dry
31-17-15 Armstrong, White Oil Corp., S-14 ..... dry
7-17-14 Lyon, Wingfield et al, 2..... 325
7-17-14 Tufts, Wingfield et al, 1.... 225

Wells Completed 85
Production 26650
Dry 15
Gas 1
Gas production 2,000,000

OUACHITA COUNTY, ARK.

COMPLETIONS

34-15-15 Snyder, Ark. Nat. Gas Co. 1.1000
25-15-16 Poole, Bradstreet et al, A-3.. 75
25-15-17 LaGrone, Burch-Walker, 1... 85
24-15-17 Berry, Clark, O. W. Trst. 1.. 80
29-15-16 Fincher, Dashko et al, 1.... 60
28-15-16 Fincher, Gulf Ref. Co., 1..... 40
3-16-15 Murphy, Humble Oil & Ref. Co., 1 800
5-16-15 Umsted, Humble Oil & Ref. Co., 3 75
5-16-15 Umsted, Humble Oil & Ref. Co., 4 10
20-15-16 Goodwin, Rhodes et al, 1..... dry
4-16-15 Hardy, Standard Oil Co., 3.. 30
5-16-15 M. W. Hardy, Standard Oil Co., 12 15
29-15-15 Johnson, Stan. Oil Co., 2..... 40
27-15-16 Reynolds, Stan. Oil Co., B-1 100
30-15-15 Fee, Smith Ref. Co., 3..... 70
20-13-17 Frank Scott, Sun Co., 1..... dry
28-15-16 Stringfellow, The Texas Co., 2 85
27-15-16 Stringfellow, The Texas Co., 3 185

Wells Completed 18
Production 2750
Dry 2
Gas 3
Gas production 19,000,000

CADDO PARISH

COMPLETIONS

5-21-15 Barlow, Ala. Pet. Co., 1..... dry
23-21-15 Bashara, Tarver & Bashara, 8 300
28-21-15 Noel, Woodley et al, 13..... dry

Wells completed 3
Production 300
Dry 2

BELLEVUE FIELD

COMPLETIONS

15-19-11 B. & W., Bliss & Weatherbee, B-2 150
15-19-11 R. B. & W., Humble Oil & Ref. Co., 13 5
15-19-11 R. B. & W., Humble Oil & Ref. Co., 14 15
15-19-11 R. B. & W., Humble Oil & Ref. Co., 15 30
15-19-11 R. B. W., Humble Oil & Ref. Co., 17..... 10
15-19-11 Fee, Louisiana Oil Ref. Corp., A-14 ..... dry
10-19-11 Elston Nat'l. Oil Co., 11..... 35
3-19-11 Jacobs, Olmstead et al, 1..... dry
15-19-11 Scanion, Roy et al, 8..... 100
15-19-11 Scanland, Roy et al, 9..... 150
22-19-11 Kendrick, Stan. Oil Co., B-6. 15
14-19-11 Weaver, Stan. Oil Co., 5.... dry

Wells completed 12
Production 510
Dry 2
Gas 1
Gas production 1,000,000

CLAIBORNE PARISH

Completions

34-20- 5 Watson, Gulf Ref. Co., 1..... dry
Wells completed 1
Dry 1

RED RIVER PARISH

Completions

28-14-11 Westdale, Muslow Oil Co., 1. dry
Wells completed 1
Dry 1

LOUISIANA WILDCATS

Bienville Parish—

29-15- 5 Fee, Hodge Hunt Lbr. Co., 1. dry

Caldwell Parish—

14-12-4e Spades, Richland Oil & Ref. Co., 1 ..... dry

Morehouse Parish—

3-19-5e Eldridge, Carson Car. Co., 2.. dry
30-20-5e Plemmons, Feazel et al, 1... gas
35-20-5e Thurston & Pratt, Humphries Oil Co., 1 ..... gas
3-19-5e Fee, Ladell et al, 11 ..... gas
23-20-5e Pickett, Morris Trust., 1..... gas
4-18-7e McDuffiem, Richland Oil & Gas Co., 1..... dry
38-21-5e Spyker, So. Car. Co., 9..... gas

Ouachita Parish—

21-19-5e F. & M. McGee, Central Carbon Co., 2 ..... gas
27-19-5e Fee, Consolidated Car. Co., 2 gas
5-18-5e Fee, J. M. Huber, 3..... gas
3-19-5e Fee, Ladell et al, 12..... gas
29-20-5e Fee, La. Gas & Prod. Co., 4 gas
21-19-5e Fee, So. Carbon Co., 22..... gas
28-19-5e Muench, Zeigen et al, 2..... gas

Webster Parish—

28-18-10 Baldwin, Luck Four Oil Co., 1 ..... dry
31-23- 9 Obler, The Texas Co., 1..... gas

Wells completed	18
Gas	13
Gas production	122,500,000
Dry	5

STEPHENS FIELD

Completions

Columbia and Ouachita Counties

29-15-20 Thompson, Ark. Tex. Oil Co., 1 ..... dry
19-15-19 Williams, Ark. Inv., Oil Corp., A-3 15
19-15-19 Jackson, Gulf Ref. Co., 5..... 30
19-15-19 Jackson, Gulf Ref. Co., 6..... 35
19-15-19 Jackson, Gulf Ref. Co., 7 40
25-15-20 J. A. Humphries, Gulf Ref. Co., 1 25
24-15-20 Milner, Hoffman & Dudney, 1. 35
13-15-20 Adkins, Hude & Aarens, 3.... 20
12-15-20 Smart, Keane & Vandersluys, 3 25
13-15-20 Smart, Keane & Vandersluys, A-2 10
30-15-19 Yarbrough, Keene & Woolf, 3 25
26-15-20 W. M. Wepfer, Magnolia Petroleum Co., 2..... 25
25-15-20 Hammond, Magnolia Pet. Co., 1 50
25-15-20 Wepfer, McDonald et al, 4... 30
19-15-19 Randoll, North Central Tex. Oil Co., 1 40
19-15-19 Randoll, North Central Tex. Oil Co., 2 40
32-16-19 J. D. Clanton, Ohio Oil Co., 1 30
29-15-19 Tidwell, Ohio Oil Co., 7..... 60
18-15-19 Brown, Shaffer Oil Co., E-3. 45
13-15-20 Smart, Shaffer Oil & Ref. Co., 2 40
13-15-20 Smart, Shaffer Oil & Ref. Co., 4 30
23-15-20 Hartsfield, Stan. Oil Co., 1.. 25
25-15-20 Milner, Stan. Oil Co., 1..... 45
13-15-20 Brown, Stan. Oil Co., 2..... 25
24-15-20 Milner, Turley & Tate, 2..... 80

Wells completed	25
Production	825
Dry	1

ARKANSAS WILDCATS

Calhoun County—

28-15-13 Freeman Smith, Barnsdale & Foster, 6 ..... dry
10-16-13 Freeman Smith, Barnsdale & Foster, 7 ..... dry

Columbia County—

6-18-16 Hollingsworth, Marr Pet. Co., 1 ..... dry

Dallas County—

27- 5-17 Wis. Lbr. Co., Traffic Oil Co., 1 ..... dry
29- 7-16 Wis. Lbr. Co., Yore et al 2. dry

Drew County—

31-13- 4 Bullock, Hanley et al, 1..... dry
9-12-4 Dishon- Holling et al, 1..... dry

Lincoln County—

29- 9- 7 Touchstone, Lincoln Oil Co.. 1 dry

Nevada County—

10-14-21 Waters, Ames et al, 2..... 100
10-14-21 Womack, Dixie Oil Co., 2.. gas
31-14-21 Pate, Miller & Kimbrough, 1.. dry

Wells completed	11
Production	100
Dry	9
Gas	2
Gas production	8,000,000

SMACKOVER DISTRICT
UNION COUNTY AREA

Rigs

4-19-15 Cullens, Ark. Nat. Gas Co., 6.
17-16-15 Harrell, Ark. Pipe Line Co., 3.
17-16-15 Harrell, Barnsdale & Foster, 1.
9-18-12 Tuberville, Bondurant et al, 1.
25-16-16 Burton, Dickson et al, 2.
18-17-14 Polk & Ezell, Donoway et al, 3.
18-16-15 McKinney, Dunn Oil Co., 1.
7-17-14 Tufts, Finn & Bell, 1.
15-16-15 Dunn, Gladys Belle Oil Co., 2.
18-17-14 Polk & Ezell, Gulf Ref. Co., 7.
3-16-15 Graves, Hall & Gann, 2.
11-16-15 Giller, Hollyfield et al, 4.
7-17-14 Stevens, Hudson & Brooks, 1.
7-16-15 J. E. Lawton, Humble Oil & Ref. Co., 2.
32-15-16 Saxon, Humble Oil & Ref. Co., 1.
7-16-15 T. C. Murphy, Imp. Oil & Gas Co., 1.
17-17-14 Moody, Patt Marr, 2.
16-16-15 McRae, McPherson Oil Co., 3.
5-16-15 Flenniken, Morris Drill. Co., 7.
5-16-16 Oran, Morris Drilling Co., A-3.
7-16-15 Lawton, Murphy, Trustee, 2.
8-16-15 Billyiu, Oil Operators Trust, 1.
3-16-15 Graves, Oil Operators Trust, 4.
4-16-15 Hays, Oil Operators Trust, 1.
8-16-15 G. E. Murphy, Oil Op. Trust, 2.
7-16-15 Lawton, Olvey et al, 1.
6-16-15 Ferguson, Parish et al, 2.
17-16-15 Harrell, Penguin Oil Co., 2.
7-17-14 Stevens, Russell et al, 1.
16-16-15 Cook, Simms Oil Co., 4.
11-16-15 Alphin, Standard Oil Co., 1.
6-16-15 McClanahan, Stan. Oil Co., 10.
21-16-12 Little, Starter et al, 1.
7-17-14 Tufts, Stock et al, 1.
3-16-15 Hays, Sun Co., 4, 5, 6.
4-16-15 Guy Hays, The Texas Co., 3.
17-16-15 Smith, Thorpe et al, 1.
3-16-15 Lyell, Wells et al, 2.
8-18-14 Van Hook, Woodley et al, 7.

Wells Drilling

3-16-15 Lyell, Amerada Pet. Co., 4.
8-16-15 J. Berry, Anderson et al, 1, 2.
2-19-15 Snyder, Berfet et al, 1.
19-17-14 Cranston, Big Four Oil Co., 2.
8-16-15 G. E. Murphy, Broderick and Calvert, A-3.
17-16-15 Smith, Chew et al, 1.
14-16-15 Giller, Crawford & Sebastian, 6.
8-16-15 Harrell, Delukie et al, 1.
8-16-15 G. E. Murphy, Delukie et al, 1.
17-17-14 Moody, Det Summerfield Oil Co., 5
25-16-16 Burton, Dickson et al, 1.
18-16-15 Smith, Dunn Oil Co., 1.
20-16-15 Hicks, Federal Pet. Co., 1.
28-17-12 Union Saw Mill, Fed. Pet. Co., 2.
15-18-15 Wells, Fed. Pet. Co., E-5.
28-15-16 Mullins, Forest Oil Co., 5.
7-16-15 Thompson, Gladys Belle Oil Co., 1, 7.
16-16-15 T. C. Goodwin, Gulf Ref. Co., 3, 4, 5.
3-16-15 Hardy Murphy, Gulf Ref. Co., 6.
14-16-15 H. A. Murphy, Higgins Oil & Ref. Co., 1.
1-16-16 McClanahan, Houston Oil Co., 1.
15-16-15 Giller, Humble Oil & Ref. Co., A-3.
3-16-15 B. Goodwin, Humble Oil & Ref. Co., 1.
10-16-15 Pate, Humble Oil & Ref. Co., 3,4.
12-17-15 Central Bank, Imperial Oil & Gas Co., 1.
33-18-17 Johnette, Livingston et al, 3.
3-16-15 Roper, Livingston et al, 2, 4.
17-17-14 Moody, Magnolia Pet. Co., 3.
8-17-14 Moody, Magnolia Pet. Co., 4.
8-17-14 Neely, Magnolia Pet. Co., 1.
18-16-16 Ark. Timber Co., Patt Marr, 1.
17-16-15 Murphy, McPherson Oil Co., 1.
7-17-14 Stevens, Mercury Oil Co., 1.
17-16-15 Harrell, Monarch Oil Co., 1.
10-19-15 Rogers, Montgomery et al, 1.
33-18-15 Gates, Morefield et al, 1.
5-16-15 Flenniken, Morris Drill Co., 1, 6.
33-15-16 Johnette, Morris Drill Co., 4, 5.
19-17-14 Polk & Ezell, Myerscough et al, 1.
6-16-15 McClanahan, J. L. Nelson, 1.
3-16-15 Graves, Oil Operators Trust, 3.
10-16-15 Lawton, Oil Operators Trust, 1.
18-17-14 Polk & Ezell, Olvey et al, 3.
15-16-15 Murphy, Page et al, 2, 3.
11-16-15 Alphin, Phillips Pet. Co., 3.
7-16-15 Tatum, Plateau Oil Co., 1, 3.
15-16-15 Craig, Pure Oil Co., 1.
10-16-15 Lawton, Sam Richardson et al, 2.
15-17-16 Dumas, Rooker et al, 1.
20-16-15 J. Burns, Roxana Pet. Co., 1.
8-16-16 Childs, Simms Oil Co., 1.
6-16-16 Holloway, Smitherman & McDonald, 1.
6-16-15 McClanahan, Stan. Oil Co., 9.
5-16-16 Saxon, Standard Oil Co., B-1.
18-17-14 Polk & Ezell, Stock et al, 3.
16-18-13 Norman, Strong Oil Corp., 1.
5-16-16 Saxon, Tarver et al, 3.
14-16-15 Murphy, Texas Co., 1.
21-16-15 Johnson, Texas Co., 1.
2-16-15 Murphy, Texas Co., 1.
10-16-15 Lawton, Vaughn & Gray, 2, 3.
7-17-14 Lyon, Vag Oil Co., 1.
18-17-14 Allen, Vitek Oil Co., 3.
6-16-15 McClanahan, Vitek Oil Co., 3.
6-16-16 Holloway, Weatherbee et al, 1.
4-16-16 Saxon, Wells et al, 1.
7-16-15 Murphy, Wilcox Oil Co., 2.
1-16-16 Prim, Wood & Palmer, 1.
8-18-14 Van Hook, Woodley et al, 6.

Shut Down

8-17-14 Amazon, Acme Oil Co., 1.
6-16-16 Ferguson, Ark. Nat Gas Co., 1.
17-18-17 Rogers, Big Four Oil Co., 1.
34-17-12 Clark, Bondurant et al, 1.
3-18-12 Stegell, Bondurant et al, 1.
19-16-15 Smith, Burton et al, 1.
1-18-16 Trimble, Constantin Oil & Ref. Co., 2.
16-16-16 Harris, Crawford & Sebastian, 1.
13-16-15 Giller, Crawford & Sebastian, 3.
10-16-15 J. H. Alphin, Del. Ark. Production Co., 1.
23-16-15 Goodwin, Dillon et al, 1.
7-17-14 Tufts, Donoway et al, 1.
8-16-15 Murphy, Gulf Ref. Co., 2.
9-16-15 Murphy, Gulf Ref. Co., 2.
15-16-16 Epps, Houston Oil Co., 1.
34-16-14 Matthews, Isola Oil Trust, 1.
6-16-16 Goff, John Knox, 1.
33-18-17 Moore, Lemon et al, 1.
28-18-15 Burton, Montgomery-Humble 1.
5-16-15 Flenniken, Morris Drill. Co., 4.
33-15-16 Johnette, Morris Drilling Co., 6.
5-16-16 Oran, Morris Drilling Co., A-2.
17-16-16 Childs, J. L. Nelson, 1.
4-16-16 Saxon, Pan American Oil Co., A-4, B-1, B-2.
10-16-16 Crowder, F. T. Pickell, 1.
30-16-15 Burton, Rica Oil Co., 1.
3-19-15 Cabiress, Richardson et al, 1.
28-16-14 Long, Roy et al, 1.
5-16-16 Saxon, Smitherman & McDonald, 3.
4-19-14 Ogden, Winger et al, 1.
33-15-16 Johnette, Nye Wilson, 1.
6-18-14 Beam, T. J. Woodley, 1.

Rigs, 40; wells drilling, 114; total 154.

SMACKOVER DISTRICT
OUACHITA COUNTY AREA

Rigs

30-15-17 Smith, American Trust Co., 1.
34-15-15 Snyder, Ark. Nat. Gas Co., 1.
25-15-17 LaGrone, Burch Walker, 3.
36-15-17 Smith, El Dorado Union Oil Co.. 1.
29-15-16 Milner, Forest Oil Co., 1.
30-15-16 Watt, Giles et al, 1.
29-15-16 Minor, Gulf Refining Co., 1.
25-15-17 Wells, Johnston Drilling Co., 1.
24-15-17 Mangis, Pioneer States Oil Co., 4.
32-15-17 Moon, Smackover Creek Oil Co., 2.
30-15-16 Mynor Estate, Smith Ref. Co., 2.
30-15-16 McRae, Smith Ref. Co., 1.
4-16-15 Hardy, Standard Oil Co., 9.
32-15-15 Umstead, Standard Oil Co.. 5.

Wells Drilling

20-14-16 Halford, Bray-Hawthorne, Inc., 1.
25-15-16 Robertson, Bradstreet et al, 2.
25-15-17 LaGrone, Burch Walker, 2.
30-15-16 Townsite, W. W. Brown, 1.
30-15-17 Ferris Burton, Jimmie Cox, 2.
10-15-18 J. H. Dawson, Gulf Ref. Co., C-1.
32-15-15 Goodwin, Gulf Ref. Co., B-4.
29-15-16 Meakin, Gulf Refining Co., 2.
24-15-17 Keller, Hunt et al, 1.
29-15-16 Fincher, Johnson et al, 1.
31-15-16 W. A. Smith, Magnolia Pet. Co., 1.
24-15-17 Mangus, Mangus Oil Co., 1.
19-15-16 Bryan, Frank Mathers, 1.
34 15 15 Snyder, Owenwood Oil Corp., 1.
24-15-17 Mangis, Pioneer Sts. Oil Co., 3.
21-11-17 Malone Tbr. Co., Pure Oil Co., 1.
32-15-16 Myer Estate, Riggs Drill. Co., 1.
25-15-17 Word, Rogers et al, 1.
31-15-15 F. A. Laney, Simms Oil Co., 2.
30-15-16 Mynor Estate, Smith Ref. Co., 1.
31-15-16 Patton, Smith Refining Co., 1.
33-15-15 Griffin, Standard Oil Co., 1.
32-15-15 Umstead, Standard Oil Co., 6.
27-15-16 Hardin, Sun Co., 3.
25-15-17 Wells, White et al, 1.

Shut Down

16-15-18 Graves, A. M. J. Oil Co., 1.
30-13-18 Smith, Berry et al, 1.
30-15-17 Ferris Burton, Jimmie Cox, 1.
28-15-16 Hardin, Forest Oil Co., 1.
22-15-17 Riley, Hammon et al 1.
19-11-16 Goodgame, Hall et al, 1.
5-16-15 Hill, Invaders Oil Co., 1.
27-15-16 Hicks, Leonard Pet. Co., 1.
31-15-16 Hargais, Marr Drilling Co., 1.
30-12-16 Martin, Newton et al, 1.
25-12-16 Eagle Mills Lumber Co., 1.
10-11-16 Henry, Reilly et al, 1.
29-15-16 Shirley Berg, Bob Simmons, 1.
32-15-17 Moon, Smackover Creek Oil Co., 1.
8-14-18 Graves, Smackover Pet. Syn., 1.
1-16-16 McDonald, Thompson et al, 3.
20-15-16 Milner, Transcontinental Oil Co., 1.
5-16-15 Goodwin, Wilson Pet. Trust, 1.
2-12-18 Garnett, Woods et al, 1.

Rigs, 14; wells drilling, 44; total, 58.

STEPHENS FIELD
OUACHITA COUNTY AREA

Rigs

15-19-11 Wesley, Ark. Inv. Oil Corp., 2.
23-15-19 Wesson, Leeper, Trustee, 1.
18-15-19 Burris, N. Central Tex. Oil Co., 2.
32-15-19 Curry, Ohio Oil Co., 1.
18-15-19 Brown, Shaffer Oil Co., E-4.
30-15-19 Weaver, Standard Oil Co., 4.

Wells Drilling

7-15-19 Wesley, Ark. Inv., Oil Corp., A-1.
30-15-19 Williams, Ark. Inv. Oil Corp., A-2.
30-15-19 L. Jones, Ark. Inv. Oil Corp., 1.
33-14-19 Allen, Hopkins, Trustee, 1.
19-15-19 Hamilton, Mutual Oil Co., 1.
29-15-19 Tidwell, Ohio Oil Co., 6.

Shut Down

30-15-19 Grayson, Mutual Oil Co., 1.

Rigs, 6; wells drilling, 7; total, 13.

COLUMBIA COUNTY AREA

Rigs

23-15-20 Jackson, Ark. Osage Corp., 3.
24-15-20 Milner, Atlantic Oil Prod. Co., 4.
14-15-20 Murphy, Atlantic Oil Prod. Co., 1.
25-15-20 J. A. Hammond, Gulf Ref. Co., 2.
24-15-20 Webfer, Haskell et al, 7.
24-15-20 Milner-Church, Hoffman and Dudley, 1.
13-15-20 Adkins, Hude & Aarens, 4.
13-15-20 Smart, Keenan & Vandersluys, 2, A-1.
24-15-20 Buffington, Pure Oil Co., 1.
13-15-20 Adkins, Shaffer Oil & Ref. Co., S-2.
24-15-20 Milner, Shaffer Oil & Refining Co., E-4.

Wells Drilling

23-18-23 Robinson, E. T. Brown et al 1.
14-16-20 Russ, Jimmie Cox, 1.
3-16-21 Fullenweider, De Soto & Hickman, 1.
12-17-22 Ray & Fullenweider, Dowby et al, 1.
24-15-20 Webfer, Haskell et al 5.
30-19-18 Haynes, Hosey-McDonald, 1.
13-15-20 Brown, Hude & Aarens, 4.
26-15-20 W. M. Webfer, Magnolia Pet. Co. 3.
35-16-21 J. W. Witt, Ohio Oil Co. 1.
24-15-20 Milner, Standard Oil Co. 8.
26-15-20 Webfer, Standard Oil Co. 2.
23-15-20 Milner, Wingfield et al 1, 2, 3, 4.

Shut Down

24-15-20 Milner, Atlantic Oil Pro. Co. 3.
14-18-21 Davis, Guy Cox et al 1.
14-15-20 Smart, Hickman et al 1.
16-15-20 Murphy, Hincey et al 1.
26-16-18 Watts, Miller et al 1.
35-18-19 Duffer, Smith & Compton 1.
28-18-20 Brown, Stough et al 1.

Rigs, 12; wells drilling, 22; total, 34.

NEVADA COUNTY

Rigs

15-14-21 Blake, Ames et al 1
36-10-23 McCain, Arkado Oil Co. 1.
14-13-20 Blakely, Beck et al 1.
3-15-20 Fullenweider, De Soto & Hickman 1.
10-12-20 Henry, Prescott Oil Co. 1.
10-14-21 Womack, Smitherman & McDonald 2.
10-14-21 Waters, Smitherman-McDonald 2.

Wells Drilling

10-14-21 Waters, Ames et al 1.
10-21-12 Westmoreland, Day Trustee 1.
11-12-23 Eaves, Edwards & Anderson 1.
10-14-21 Womack, Dixie Oil Co. 1.
36-13-20 Stone, Millie Dee Trustee 1.
10-14-21 Drake, Smitherman-McDonald A-1.
10-14-21 Womack, Smitherman-McDonald 1.
16-14-21 Butcher, Steele Sandlin 1.
13-14-22 B. Martin, Steele Sandlin 1.
9-13-20 Moore & Martin, Wooten et al 1.

Shut Down

31-13-21 Barley, Carter et al 1.
30-14-20 Phillips, Haskell et al 1.
1-16-23 Louis Suckle, Weisman et al 1.
13-13-22 East, Wilson Oglesby et al 1.

Rigs, 7; wells drilling, 14; total, 21.

BELLEVUE FIELD

Rigs

15-19-11 Bliss & Weatherbee, Bliss & Weatherbee B-3.
27-19-11 Catlet, Peps et al 1.
22-19-11 Kendrick, Standard Oil Co. B-7.
10-19-11 Bliss & Weatherbee, Standard Oil Co. 6.
27-19-11 Catlet, Webb et al 1.

Wells Drilling

15-19-11 Bliss & Weatherbee, Bliss & Weatherbee, A-3.
15-19-11 Fee, Louisiana Oil Ref. Corp. D-1, D-17.
23-19-11 Strange, Olmstead et al, A-8, A-9.
15-19-11 Scanland, Roy et al, 7.

Shut Down

4-18-12 Atkinson, Corbett et al 2.

Rigs, 5; wells drilling, 7; total, 12.

CADDO PARISH

Rigs

14-21-15 Robertshaw, Fortuna Oil Co. 16.
24-20-15 Youree Randolph, Humble Oil & Refining Co. 1.
30-19-15 Nickerson, Mateen et al 1.

Wells Drilling

15-18-16 Sharp, Brewer & Sewall 1.
12-21-15 Robertshaw, Dixie Oil Co. 53,54, 55.
5-20-15 D. Thigpen, Fortuna Oil Co. 16.
22-21-15 Raines, Fortuna Oil Co. 19.
34-23-16 French, Louisiana Texas Community Oil Co. 1.
34-21-15 Bradford, McCarty & Giles 1.
31-21-15 Fee, Muslow Oil Co. 1.
23-21-15 Moore, Mutual Oil Co. 3.
3-20-15 Green, St. Louis Caddo Oil Co. 1.
9-20-15 Alexandria, Vitek Oil & Refining Co. 1.

Shut Down

32-21-16 Fee, W. D. Chew, 2.
2-16-15 Gardner & Blades, Caddo Western Oil Co. 1.
21-21-14 Davis, Eades et al 1.
15-21-15 Hampton, Fortuna Oil Co. A-2.
23-21-15 Hanzen Oil Co., Glassell et al 1.
11-16-14 Mitchell, Mitchell Oil Co. 1.
34-23-15 Robinson, Myra Oil Co. 1.
12-21-15 Lynn, Old Settlers Oil Co. 5.

Rigs, 3; wells drilling, 20; total, 23.

CLAIRBORNE PARISH

Rigs

22-19- 5 Fields, Forest Oil Co. 1.
24-23- 8 Garrett, Louisiana Oil Refining Corp. 3.
9-23- 8 Sherman, Ohio Oil Co. 15.

Wells Drilling

35-22- 7 McKenzie, El Dorado Chief Oil Co. 1.
28-23- 8 Goree, Fortuna Oil Co. 1.
26-23- 8 Sherman, Gilliland Oil Co. 1.
10-23- 7 Teague, Ohio Oil Co. 1.
17-22- 5 Reinach, Triangle Drilling Co. 1.

Shut Down

20-21- 8 Aubrey, Block Oil Co. 1.
28-20- 6 Craighead, Cox et al 1.
26-23- 8 J. L. Garrett, Craig et al 1.
15-23- 4 Brinkley, Price, Harrell 1.
12-23- 4 Cooper, Mitchell et al 1.
20-19- 5 Boatner, Myers et al 1.
9-23- 8 Sherman, Ohio Oil Co. 16.

Rigs, 3; wells drilling, 12; total, 15.

DE SOTO PARISH

Wells Drilling

35-13-14 Roscoe, Phillips & Garrett 1.
25-13-13 Jenkins, Pollock et al 1.
30-14-13 Tompkies, Snell & Kennebrew 1.
32-12-11 Gilbert, A. H. Tarver 1.

Shut Down

11-11-16 Bland, De Soto Oil & Gas Co. 2.

Rigs, 0; wells drilling, 5; total, 5.

RED RIVER PARISH

Wells Drilling

13-12-10 Marston, Coushatta Synd. 1.
7-12-10 Pugh, Fortuna Oil Co. 58.
2-14-12 Fee, LaGrand et al 2.
10-12-10 Fletcher, United States Drilling Co. 3.

Rigs, 0; wells drilling, 4; total, 4.

LOUISIANA WILDCATS

Rigs

34-18- 7 Durett, Smith et al 1.
6-18- 5 Harrell, Smith et al 1.
12-18-12 Freeman, Hoover et al 1.
25-18-1w Simms, Gault & Greer 1.
35-20-2w Colvin, Helm & Egger 1.
35-20-4e Cole, Fortuna Oil Co. 1.
27-19-5e Fee, Southern Carbon Co. 24.
29-19-5e Gibbs, The Texas Co. 3.
33-19-4e O'Neal, The Texas Co. 3.
4-18-5e West Virginia Timber Co., West Virginia Oil & Gas Co. 2.
23-23-1e Newson, Collins & Woodley 1.
12-23-1e Frost Johnson Lumber Co., Davidson & Palmer 1.
14-21-10 S. J. Merritt, Oil Field Gas Co. 1.

Wells Drilling

12-18- 7 Randell, Ohio Oil Co. 1.
21-17- 8 Leena Scott, Standard Oil Co. 1.
18-16-11 Crawford, Jenkins & Booth, Palmer Corp. 4.
18-19-13 Vance, Perkins et al 2.
30-23-12 Bolinger, Sales & Walker 3.
13-17-12 Railroad Lands, Skannell et al 2.
23-18-11 Jones, Sneed et al 1.
18-22-11 Bolinger, Triangle Drilling Co. 1.
4-18-11 McGuffin, Zinc et al 3.
20-10-2e Urania, Urania Petroleum Co. 1.
27-20-3w Colvin, Four Creek Oil Co. 1.
28-20-5e Oden, Consolidated Oil Co. 1.
8-19-5e Wilson, Consolidated Oil Co. 1.
54-17-3e Dixie Lumber Co., Haynes et al 1.
3-19-5e Fee, Ladell et al 13.
27-20-5e Fee, Ladell et al 14.
23-20-5e Fee, Ladell et al 15.
34-20-5e Snyder, Morris, Trustee 1.
23-20-5e Page, Morris, Trustee 1.
29-21-5e Spyker, Southern Carbon Co. 18.
3-18-5e West Virginia Timber Co., Allen Oil Co. 2.
4-19-5e Lieber, Boone, Trustee 1.
32-19-5e Richie, Florsheim et al 1.
28-19-5e Stubbs, Hosterman et al 1.
29-19-4e McEwen, Maury Drilling Co. 1.

28-19-5e Hancock, Monroe Louisiana Carbon Co. 1.
28-19-5e Fee, Monroe Louisiana Carb. Co. 1.
5-19-4e Lieber, Ouachita Natural Gas Co. 2.
28-19-5e Hare, Owens et al 1.
32-19-5e Potts, Potts, Trustee 2.
21-19-5e Morgan, Palmer, Trustee 1.
21-19-5e Fee, Southern Carbon Co. 23.
42-20-5e Fairbanks, Southern Carbon Co. 5.
20-19-5e Gibbs, The Texas Co. 2.
32-19-4e O'Neal, The Texas Co. 2.
4-19-5e Fee, Texas Louisiana Producing & Oil Co. 2.
4-12-5e Farmer, Tidal Oil Co. 1.
23-19-5e Lieber, Standard Carbon Co. 1.
15-19-5e Puckett, Standard Carbon Co. 1.
28-19-5e Daughtie, United Gas & Power Co. 1.
28-19-5e Muench, Zeigen et al 3.
7-20-5e Michim, Zeigen et al 1.
7- 5-12 Walker, La Creole Oil Co. 1.
12-23-1w Security Trust, Love Bros. 1.
17-23-1e Clark, Union Parish Drilling Co. 3.
14-21-10 S. J. Merritt, Fortuna Oil Co. 1.
27-23-10 Maynor, Oil Field Gas Co. 1.
5-22-10 J. M. Merritt, The Texas Co. 1.

Shut Down

2-22-12 Bolinger, Atlas Drilling Co. 1.
14-16-12 Simpson, Davis Burch 3.
21-23-11 Harris, Morefield et al 1.
22-17-12 Fee, Skannell et al 1.
15-22-14 Bolinger, Tarver Bros. Pet. Co. 1.
20-20-2w Huffman, Bob Church Pool 1.
8-20-3w McKay, Middle Fork Synd. 1.
26-20- 5 Perry, McKenzie et al 1.
7- 7-12 Bowman Hicks, Brown et al 1.
12- 4-13 Antony, Collins et al 1.
12- 4-13 Glauque, Collins et al 1.
33- 9-11 Raines, Gladys Bells Oil Co. 1.
8- 6-13 Long Bell Lbr. Co., Tarver et al 1.
6-23-3w Brown, Gardner et al 2.
23-23-2w Rogers, Price et al 1.
17-19-10 Hudson, Hudson et al 1.
29-21-10 Miller, Palmer Corp. 1.
8-18-10 Longino, Wingfield et al 1.
Rigs, 13; wells drilling, 67; total, 80.

ARKANSAS WILDCATS

Rigs

15- 8-22 Wilson, American Drilling Co. 1.
35- 9-18 Grayson & McLead, Dudley et al 1.
31- 7-20 Wright, Rushville, Trustee 1.
8- 9-20 Clark, Vitek Oil Co. 1.
12- 8-12 Wilson, Clark & Melat 1.
27-12- 8 Martin, W. H. Rhodes et al 1.
22- 7-12 Taylor, Clark & Melat 1.
9-11-26 Haffke, Columbus-Hope Oil Co. 1.
22-14-28 Gillespie, Munn Oil & Gas Co. 1.

Wells Drilling

20-14-14 Abbott, Checkerboard Oil Corp. 1.
26-16-13 Freeman Smith Lumber Co., Harris & Bickle 1.
10-13- 6 Karns, Graves et al 1.
26- 5-12 Prague, McKenzie & Emloy 1.
31- 4-11 Britch, Parr Oil Co. 1.
17-11-25 Nichols, Myers et al 1.
36-12-27 Adams, G. W. Simmons, Trustee 1.
17-12-23 Yates, Orr et al 1.
31- 5- 8 Trimble, Fuller-Draiss 1.
15-13-29 Goodwin Timber Co., Gaines et al 1
29-13-20 Toland Taylor, Red River Valley Oil Co. 1.
22-15-25 Mann Land & Development Co., Central Coast Oil Co. 1.
8-14-27 Adams, Cochran & Ray 1.

Shut Down

7- 2- 5 Griffith, Arkansas Land & Lease Development Co. 1.
11- 7- 4 Rose, Gillette Oil & Gas Co. 1.
17- 3- 5 Weaver, Johnson et al 1.
16-11-13 Hearnsberger, Calhoun Oil & Gas Co. 1.
29-12-12 Adams, Vitek Oil Co. 1.
26-10-20 Barringer, Arkansas Oil Co. 1.
22- 8-18 Littlejohn, Littlejohn & Hall 1.
28- 5-23 Langsford, United Pet. Corp. 1.
18-11-11 Word, Stark & O'Mara 1.
33- 8-15 Metlock & Higgs, Conway et al 1.
5-10-16 Taylor, Stahl et al 1.
22-11- 7 Graves, Mountain Ridge Oil Co. 1.
23-13- 6 Fee, Stenke et al 1.
15- 5-12 Stupke, McKenzie & Emloy 2.
24-11-25 King, Columbus-Hope Oil Co. 1.
33-11-26 Ellen, Hackathorne et al 1.
34-19-24 Red River Land Co., Kensaw Pet. Co. 1.
16-15-24 Osborn, Louisville Synd. 1.
25-17-24 Renick, Wilcox et al 1.
2-14-31 Allen, Grote et al 1.
32-11-32 Ludlow, Sullivan Oil & Gas Co. 2.
2-16-28 Bedland, Primero Oil Co. 1.
Rigs, 9; wells drilling, 35; total, 44.

GULF COAST

Summary of Field Operations

District—	Comp.	Prod.	Dry	Gas	Rigs	Drg.	Ttl.
Batson	5	55	1	0	1	2	3
Barber Hill.	3	300	2	0	0	4	4
Blue Ridge .	0	0	0	0	1	1	2
Big Creek ..	2	800	1	0	1	2	3
Damon Md..	2	0	2	0	1	3	4
Goose Creek	5	510	3	0	0	10	10
Humble	4	60	2	1	0	4	4
Hull	8	5,700	1	1	4	19	23
Jennings ...	1	0	1	0	0	2	2
Markham ..	0	0	0	0	0	2	2
Orange	15	9,850	5	1	3	13	16
P. Sunset....	1	0	1	0	0	3	3
Spindletop ..	1	30	0	0	0	1	1
Saratoga ...	1	10	0	0	0	1	1
Sour Lake ..	3	300	1	0	4	3	7
Somerset ...	5	34	0	0	4	4	8
Vinton	3	100	1	0	0	6	6
W. Columbia	1	1,600	0	0	0	5	5
Laredo	8	825	0	0	2	11	13
Luling	18	18,300	2	0	5	15	20
Milam Co....	3	40	0	2	0	6	6
Miscl.	12	50	9	1	75	136	211
Ttl. Sept..101		38,564	32	6	101	253	354
Ttl. Aug..143		53,523	45	2	111	286	397
Difference 42		14,959	13	4	10	33	43

WELLS COMPLETED

BATSON

Knight, Reliance Oil 35 15
Milhome, S. R. Buchanan 69 15
Milhome, S. R. Buchanan 70 10

Donohoe, Parafine Oil 1 ..... sw
Fee, Parafine Oil 47 15

Wells completed 5
Production 55
Saltwater 1

BARBER HILL

Japhet, Coastal Oil Fields 5 (wo) 300
Fisher, Republic Production 1 ..... abd
Scott, The Texas Co. 1 ..... abd

Wells completed 3
Production 300
Abandoned 2

BIG CREEK (Fort Bend County)

Davis, Gulf and McSweeney & Snowden 6 800
Wheat, Gulf and McSweeney & Snowden 6 ..... abd

Wells completed 2
Production 800
Abandoned 1

DAMON MOUND

Ward, H. R. Cullen 3 ..... sw
Becker, Sinclair Oil & Gas 7 ..... abd

Wells completed 2
Abandoned and saltwater 2

GOOSE CREEK

Galliard, Humble Oil & Ref. 5 (wo)... 60
State land, Gulf Prod. 10 ..... abd
Galliard, Gulf Prod. 2 ..... abd
Wright, Sun Co. 4 450
Galliard, Gulf Coast and Crown Joint 18 (wo) ..... sw

Wells completed 5
Production 510
Abandoned and saltwater 3

HUMBLE

Landslide, Southern Pet. 42 (wo)..... sw
W. & P. Chapman et al 4..... gas
Cherry, Webb Oil 24 20
Bender, Thomas Oil 3 ..... abd

Wells completed 4
Production 60
Gas 1
Abandoned and saltwater 2

HULL

Harrison, Gulf Prod. 3, 4 ..... sw
Merchant, Higgins Fuel Oil 8 200
Povito, Link Oil 1 250
Hannah, Texas and Vacuum Oil 1 .... gas
Mecom, Mecom Oil 5 2000
Dolbear, Republic Prod. 70 3000
Dolbear, Republic Prod. 71 50
Dolbear, Republic Prod. 33 (wo) 200

Wells completed 8
Production 5700
Gas 1
Saltwater 1

JENNINGS

Latrielle, Rycade Pet. 1 ..... sw

Wells completed and salt water 1

ORANGE

Winifree, Orange Pet. 8 1000
Berwick, Orange Pet. 3 500
Granger, Sinclair O. & G. 6 (SW)..... 2000
Winifree, Humble O. & R. 9 (sanded) 2000
Chesson, Humble Oil & Ref. 18-B 300
Kishi, Sun Co. 2 ..... abd
Kato, Sun Co. 1 ..... sw
McCall, Gulf Prod. 1 ..... abd
Chesson, Gulf Prod. 3 (wo) 800
Nager, Atlantic Oil Prod. 2 (wo) .... gas
Jackson, Supreme Oil 4 1800
Chesson, Mutual Oil 6 (wo) ..... dry
Chesson, Mutual Oil 4 (wo) (sand) 2500
Gunstream, Sun Co. 3 (wo) 800
McGuire, Orange Pet. 4 (wo) 150

Wells completed 15
Production 9850
Gas 1
Abandoned and saltwater 5

PIERCE JUNCTION

Settegast, Gulf Prod. 1 ..... abd

Wells completed and abandoned ... 1

SPINDLETOP

Trembly, Baker Oil 8 30

Wells completed 1
Production 30

SARATOGA

Gulf, Cotton Oil 3 10

Wells completed 1
Production 10

SOUR LAKE

Fee, The Texas Co. 226 (wo) 50
Hardin, Lakeview Oil 33 250
Trustee, White et al ..... abd

Wells completed 3
Production 300
Abandoned 1

SOMERSET

Tex-Carruthers, Grayburg Oil 7 5
Wells, Grayburg Oil 7 5
Tutschke, Blue Bonnett Oil 15 8
Smith, Helvetia Copper 4 8
Drowski, Empire G. & F. 6 8

Wells completed 5
Production 34

VINTON

Gray, Marrs McLean 4 25
Vincent, The Texas Co. 16 (wo) 75
McCay, Edgerly Pet. 1 ..... sw

Wells completed 3
Production 100
Saltwater 1

WEST COLUMBIA

Hogg, The Texas Co. 72 1600

Wells completed 1
Production 1600

LAREDO DISTRICTS

Aviators, Laurel Oil 3 50
Aviators, Andrews Pet. 4 100
Schott, Carnhan Prod. 55 150
Schott, Witherspoon Oil 11 100
Schott, Magnolia Pet. 14 75
———, Rio Grande Oil 2 (dpnd) 100
———, Weslaco Oil 1 100
———, Ohern & Whittley 3 150

Wells completed 8
Production 825

LULING

(Caldwell County)

L. Byrd, Grayburg Oil 1 1000
Merriweather, M. K. Towns 3 800
Hardemann, United North & South Oil 3 500
Tabor, United North & South Oil 2....2000
C. Malone, United North & South 1....2000
Rios, United North & South Oil 5 500
Rios United North & South Oil 6 500
Trammel, United North & South Oil 1.. 500
Mercer, United North & South Oil 1... 600
Tabor, Royal Oil 3 1000
Tabor, Royal Oil 4 3000
C. Byrd, Rydell Oil 1 1200
Brown, Midwest Texas Oil 1 1000
Merriweather, Walsh et al 1 1000
Tabor, United North & South 4 (sul w) 1500
Hardemann, Sunland Oil 1 1200
Ross, Witherspoon Oil 1 (sul w) ..... abd
School district, McNeill et al 1 ..... dry

Wells completed 18
Production 18300
Dry 2

MILAM COUNTY

(Shallow Sands)

Shelander, Clifton & Powers 1 ..... gas
Watson, Minerva Pet. 5 40
Phillips, J. W. Lee 1 ..... gas

Wells completed 3
Production 40
Gas 2

MISCELLANEOUS

Chambers County—
Anahuac, Comet Oil 1 ..... abd
Goliad County—
Eckhardt, Cal-Tex Oil 1 ..... abd
Galveston County—
Allen, Magnolia Pet. 1 ..... abd
Houston County—
Anderson, Porter Oil 1 ..... abd
Harris County—
Warren Texas Exploration 13 ..... abd
Channel City, Garrett Oil 1 ..... abd
Green's Switch, Neils Esperson estate 1 abd
Medina County—
Durst, Ina Oil 1 30
Durst, Ina Oil 2 30
McMullen County—
Jacobs, Southern Nat. Gas 2 ..... gas
Nacogdoches County—
Lacy, Palmetto Pet. 2 ..... abd
Wharton County—
Trustee, Gulf Prod. 1 ..... sw

Wells completed 12
Production 50
Gas 1
Abandoned and saltwater 9

BATSON

Rigs

Hooks, Sun Co. 1.

Wells Drilling

Autry, The Texas Co. 1.
Donohoe, Parafine Oil 1 (dpng).
Rigs, 1; wells drilling, 2; total, 3.

BARBER HILL

Wells Drilling

Barrow, Mills Bennett 1 sd.
Barrow, Coastal Oil Fields 1 sd.
B. & F., Humble Oil & Ref. 3 (dpng).
Winifried, Gulf Sulphur 1.
Wells drilling, 4.

BLUE RIDGE

Rigs

Robinson, The Texas Co. 11.

Wells Drilling

Booth, Mutual Oil 1.
Rigs, 1; wells drilling, 1; total, 2.

BIG CREEK

Rigs

Davis, Gulf Prod. and McSweeney & Snowden 7.

Wells Drilling

Ahlers, Coastal Oil Fields 1 (dpng).
Ahlers, Oil Prod. 1 sd.
Rigs, 1; wells drilling, 2; total, 3.

DAMON MOUND

Rigs

Smith, Humble Oil & Ref. 1.

Wells Drilling

Hyde, Cullen et al 3 sd.
Jackson, Sinclair Oil & Gas 19.
Williams, Sinclair Oil & Gas 7.
Rigs, 1; wells drilling, 3; total, 4.

GOOSE CREEK

Wells Drilling

Smith, Humble Oil & Ref. 45, 47 (wo), 51.
Tabb, Humble Oil & Ref. 10.
Galliard, Gulf Coast and Crown 38.
Wright, Gulf Prod. 12.
Tabb, Gulf Prod. 10.
Bryan, B. Perryman 4 sd.
Silliman Island, J. R. Copeland 1.
Scorrgea, Hisgen Pet. 2 sd.
Rigs, 0; wells drilling, 10; total, 10.

HUMBLE

Wells Drilling

———, Coastal Oil Fields 1.
Hyde, Caroline Oil 1.
Koehler, The Texas Co. 12 (dpng).
Burt, The Texas Co. 17 (dpng).
Wells drilling, 4.

JENNINGS

Wells Drilling

Martin, Hines et al 7.
Latrielle, Rycade Pet. 1 (dpng).
Wells drilling, 2.

HULL

Rigs

Mecome, Mecom Oil 6.
Lind, Empire G. & F. 3, 4.
Povito, Link Oil 3.

Wells Drilling

Dolbear, Republic Prod. 23, 45 (wo), 72.
Stengler, Yount-Lee Oil 5 (wo).
Taylor, Yount-Lee Oil 2.
Taylor, Higgins Fuel Oil 2.
Harrison, Gulf Prod. 2, 3 (dpng), 4.
Taylor, Humble Oil & Ref. 1, 5.
Miller, Monarch Oil & Ref. 2, 3.
Povito, Link Oil 2.
Rivere, Link Oil 4.
Hannah, Texas & Vacuum Cos. 1, (dpng.)
Devore, Eagle Point Oil 1 sd.
Lynch, Hull Oil & Ref. 1.
Carr, The Sun Co. 9.
Rigs, 4; wells drilling, 19; total, 23.

MARKHAM

Wells Drilling

Hudson, Rycade Pet. 1 (dpng).
Myers, Deering et al 2.
Wells drilling, 2.

ORANGE

Rigs

Chesson, Mutual Oil 7, 8 (wo).
Granger, Sinclair Oil & Gas 7.

Wells Drilling

Winifree, Amn. Natl. Oil 1.
Hager, Atlantic Oil Prod. 2 (dpng).
McLean, Brownie Babbittee Oil 5 (wo).
McLean, Gulf Coast Oil 3 (wo).
State land, Rycade Pet. 1-B, 3-A, 2-C.
Chesson, Mutual Oil 6 sd.
Winifree, Humble Oil & Ref. 8.
Chesson, Humble Oil & Ref. 20.
Winifree, Orange Pet. 4, 8.
Berwick, Orange Pet. 2.
Rigs, 3; wells drillings, 13; total, 16.

SPINDLETOP

Wells Drilling

McFaddin, Rycade Pet. 2.
Wells drilling, 1.

SARATOGA

Wells Drilling

B. B. B., Rio Bravo Oil 104.
Wells drilling, 1.

PIERCE JUNCTION

Wells Drilling

Ritter, The Sun Co, 1.
Whitehead, Humble Oil & Ref. 3.
Fitzsimmons, Humble Oil & Ref. 5.
Wells drilling, 3.

SOUR LAKE

Rigs

Hardin, Humble Oil & Ref. 37.
Hardin, Gulf Prod. 37.
Fee, Gilbert Oil 35.
Hardin, J. M. Hardie 11.

Wells Drilling

Fee, The Texas Co. 248 (wo).
Hardin, Lakeview Oil 37.
Messiac, Messiac Oil 2.
Rigs, 4; wells drilling, 3; total, 7.

SOMERSET

Rigs

Ernst, Kurtz Oil 1.
Tex-Carruthers, Grayburg Oil 10.
Hopkins, Wolfe et al 1.
Nuckols, J. K. Burr 7.

Wells Drilling

Kessler, Helvetia Oil 1.
Swearenger, Swearenger et al 3.
Hoffman, Ritledge et al 1 sd.
Carruthers, McClure Oil 8 sd.
Rigs, 4; wells drilling, 4; total, 8.

VINTON

Wells Drilling

Johnson, Sun Co. 1.
Gray, Vinton Pet. 40, 43.
Gray, Texas Co. 21 (wo).
Gray, McLean Oil 4 (wo).
Gray, Tillery Oil 1 sd.
Wells drilling, 6.

WEST COLUMBIA

Wells Drilling

Tyndale, Humble Oil & Ref. 6.
Robertson, Sun Co. 2 (dpng).
Abrams, The Texas Co. 1 (wo).
Robinson, Humble Oil & Ref. 1 (wo).
Hogg, The Texas Co. 53 (wo).
Wells drilling, 5.

MILAM COUNTY

Wells Drilling

Sterisky, Van Dorn et al 1.
Moody, McDonald et al 1.
Lewis, Lucky & Wilson 2.
Rattig, E. L. Hardin 1.
Van Goten, Flewelleyn 1.
Watson, Minerva Pet. 4.
Wells drilling, 6.

Rigs

———, O'Hern & Whitesley 4.
Gonzales, Bailey et al 2.

Wells Drilling

Garcia, Magnolia Pet. 17.
Garcia, Witherspoon Oil 12.
Pratt, S. Y. D. Syndicate 1 sd.
Harvey, Barnhart Drg. Co. 1.
Garcia, Butler & McMurray 1.
Cole, Cole Pet. 3.
Schott, Schott Oil 13 (dpng).
———, Mirando Oil 2 sd.
Vela, Laurel Deep Well 2 sd.
Keiser, Neuva Oil 1 sd.
Gates, Leaseholders Pro. & Ref. 6, 7.
Rigs, 2; wells drilling and shut down, 11; total 13.

LULING

Rigs

Merriweather, M. K. Towns 4.
Martin, Tindley & Keogh 1.
Herschap, Universal Oil 1.
Rios, United North & South Oil 7.
C. Byrd, United North & South Oil 3.

Wells Drilling

Merriweather, Magnolia Pet. 1.
Tabor, United North & South Oil 5.
Purcell, Hindman et al 1 sd.
Merriweather, Grayburg Oil 7, 8.
Walker, Raykor Oil 1 sd.
Cole, Thomason & Blackstone 1 sd.
Gideon, United North & South 1.
M. Mercer, United North & South Oil 2.
W. F. Mercer, United North & South Oil 2.
C. Malone, United North & South Oil 2.
Moore, Jarmon Oil 1.
Bramwell, Grayburg Oil 1.
Grady, Luling Pet. 1.
Breweyen, East & West Oil 1 sd.
Rigs, 5; wells drilling, 15; total, 20.

WYOMING-MONTANA

Summary of Field Operations

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Big Muddy	1	15	0	0	9	9
Salt Creek	55	17,760	0	60	143	203

4-16-15 Hays, Oil Operators Trust, 1.
8-16-15 G. E. Murphy, Oil Op. Trust, 2.

25-15-17 Wells, Johnston Drilling Co., 1.
24-15-17 Mangis, Pioneer States Oil Co., 4.

30-14-20 Phillips, Haskell et al 1.

Lance Creek	1	0	1	0	7	7
Warm Spgs., etc.	0	0	0	5	18	23
Big Horn Basin	2	10	0	4	25	29
Lost Soldier Dist.	3	2,950	0	12	43	55
Rock River Dist.	0	0	0	2	22	24
Fremont County	0	0	0	5	29	34
Mule Creek	0	0	0	0	3	3
Osage	0	0	0	3	26	29
Natrona County.	1	100	0	2	20	22
Lincoln and Uintah	0	0	0	4	17	21
Baxter Basin ..	0	0	0	3	12	15
Miscellaneous ..	0	0	0	10	42	53
Total Sept....	63	20,835	1	110	417	527
Total Aug.....	46	14,531	1	135	403	538
Difference	17	6,304	0	25	14	11

Gas production, 16,000,000.

MONTANA

Summary of Field Operations

District—	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Cat Creek	5	180	1	5	27	32
Kevin-Sunburst .	24	2,343	4	14	55	69
Miscellaneous ..	5	0	4	5	100	115
Total Sept....	34	2,523	9	24	192	216
Total Aug.....	35	1,925	8	27	188	215
Difference	1	598	1	3	4	1

Gas production, 9,500,000.

UTAH

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Drg.	Ttl.
Miscellaneous ..	0	0	0	0	24	24

BIG MUDDY

Wells Drilling

8-33-76 Crary Texas Prod. Co. 8.
22-33-76 Fenex Mutual Oil 4.
8-33-76 Whiteside Mutual Oil 37.
8-33-76 Humphrey Mutual Oil 38.

Shut Down

15-33-76 Whiteside Mutual Oil 3.
4-32-77 Big Bear Oil 1.
23-33-76 Northstar Oil 1.
31-33-76 State Glenhurst Oil 1.
36-33-76 Pathfinder Oil 1.

Rigs, 0; wells drilling, 9; total, 9.

SALT CREEK

Rigs

13-39-79 SE¼, Blackstone Salt Creek F-4.
11-39-79 NE¼, Kasoming Oil B-11.
17-39-78 SE¼, Marine Oil 6.
17-39-78 NW¼, W. States O. & L. 36-AX.
17-39-78 NE¼, Carter Oil P-8.
2-29-79 SE¼, Sinclair Wyoming 7-A.
10-40-79 SE¼, Empire State 25-A.
24-40-79 SW¼, Wyoming Oil Flds. 4-A.
7-39-78 SW¼, Salt Creek Cons. 18-A.
29-40-78 SW¼, Continental Prod. S-3.
6-39-78 SE¼, Prod. & Refiners 4.
2-39-79 SW¼, Mutual Oil 12-A.
11-39-79 ——, Kasoming Oil B-4, B-6, B-7.
1-39-79 SE¼, Northwestern Oil 6-A.
2-39-79 SW¼, Northwestern Oil 1-AX.
8-39-78 SE¼, Outwest Pet. 6-A, 34-A.
11-39-79 SW¼, E. T. Williams 2-A.
17-39-78 SE¼, Marine Oil 2.
22-40-79 SW¼, Wyokans Oil 5.
19-40-78 SE¼, Norris Oil 18-A.
5-39-78 NW¼, Western States 4-A.
13-39-79 SE¼, Bessemer Oil 24-A.
7-39-78 SE¼, Chappel Oil 3.
19-39-78 NW¼, Continental Prod. R-2.
8-39-78 NE¼, Eureka Wyo. 2.
13-38-78 SW¼, Wyo. Teapot Oil 1.
16-38-78 NE¼, Nicholaysen et al 1.
12-39-79 E½, Ohio Oil 18.
1-39-79 —— Dain Ohio Oil 5, 6.
12-29-79 —— Castle Rock Ohio Oil 5.
32-40-78 SW¼, Continental Prod. B-5.
10-39-79 NE¼, Prod. & Refiners 9-A.
15-40-79 SE¼, Prod. & Refiners 8-X.
5-39-78 SE¼, Western States 33-A.
8-39-78 SE¼, Carter Oil P-7.
5-39-78 SE¼, Carter Oil 6.
22-40-79 SE¼, Wyoming Oil Flds. 7-A.
22-40-79 NE¼, Wyo. Oil Fields 5-A.
34-40-79 NE¼, Wyoming Asso. 11-AX.
34-40-79 NE¼, Wyoming Asso. 26-AX.
24-40-79 SW¼, Wyoming Asso. 26-A.
22-40-79 SE¼, Wyoming Asso. 32-A.
27-40-79 NE¼, Wyoming Asso. 5-A.
31-40-78 NE¼, Salt Creek Cons. 22-A.
13-40-79 SE¼, Mountain & Gulf 1-A.
2-39-79 NW¼, Midwest Oil 15-A.
34-30-79 NE¼, Midwest Oil 11-AX.
22-40-79 SW¼, Midwest 12-A.
11-40-79 SE¼, Midwest Oil 6-A.
36-40-79 NE¼, Midwest-Wyo. Asso. 13-A.
28-39-78 SE¼, Mammoth Oil 405.
28-39-78 NW¼, Mammoth Oil 204.
27-39-78 SW¼, Mammoth Oil 302, 303.
33-39-78 NW¼, Mammoth Oil 201.
5-39-78 SE¼, Marine Oil 2-CR.

Wells Drilling

22-40-79 NW¼, Kasoming Oil D-2.
7-39-78 NW¼, Kasoming Oil E-9.
11-39-79 NE¼, Kasoming Oil B-18.
12-39-79 SW¼, Kasoming Oil C-8.
11-39-79 —— E. T. Williams 4.
22-40-79 SW¼, Wyokans Oil 5.
8-39-78 NE¼, Western States 33-A.
17-39-78 NW¼, Western States 12-X.
7-39-78 SE¼, Chappel Oil 1-D.
13-39-79 SE¼, Continental Prod. B-1.
32-40-78 NW¼, Continental Prod. B-5.
8-39-78 NE¼, Carter Oil H-1.
24-39-79 NE¼, Kinney Coastal 16-A.
29-40-78 NW¼, Kinney Coastal 32-AX.
15-40-79 SW¼, Prod. & Refiners 1.
18-40-78 NE¼, Prod. & Refiners F-2.
2-39-79 SE¼, Sinclair Wyoming 18-A.
8-39-78 SW¼, Mutual Oil F-6.
1-39-79 SE¼, Mutual Oil 34-AX.
24-39-79 NE¼, Mutual Oil 22-A.
19-39-78 SE¼, Texas Prod. D-4.
10-40-79 SE¼, Empire State 36-AX.
11-39-79 NW¼, Salt Creek Cons. 8-A.
3-39-79 NE¼, Salt Creek Cons. 30-A.
2-39-79 SW¼, Salt Creek Cons. 22-AX.
34-39-78 SW¼, Mammoth Oil 301.
17-39-78 Tract G2, Ohio Oil 1.
13-39-79 NW¼, Kasoming Oil D-3, D-6.
11-39-79 SE¼, Kasoming Oil A-12.
6-39-78 NW¼, Blackstone Salt Crk. A-3.
13-39-79 SE¼, Bessemer Oil 12-A.
24-39-79 NE¼, Kinney Coastal 15-A.
15-40-79 ——, Producers & Refiners 7.
2-39-79 SW¼, Mutual Oil 13-A.
3-39-79 NW¼, Salt Creek Cons. 25-A.
1-39-79 NW¼, Midwest Oil 18-A.
22-40-79 NE¼, Midwest Oil 7-A.
14-40-79 NW¼, Midwest Oil 26-A.
11-40-79 NW¼, Mountain & Gulf 36-A.
17-39-78 Tract G, Ohio Oil 2.
5-39-78 NE¼, Western States 30-A.
3-39-79 NW¼, Duthie Oil Co. 4.
23-39-79 SE¼, Evans Oil Corp. 1.
20-39-78 Tract ET, Ohio Oil 4.
18-40-78 SW¼, Continental Prod. W-1.
34-40-79 SW¼, Mutual Oil 13-A.
34-40-79 NW¼, Wyoming Asso. 13-A.
19-30-78 SE¼, Continental Prod. C-1.
20-39-78 SE¼, Mammoth Oil 404, 407.
22-40-79 NW¼, Kasoming Oil G-14, G-13.
5-39-78 SE¼, Marine Oil CR-1.
8-39-78 NE¼, Marine 1-DS.
18-40-78 SE¼, Prod. & Refiners 2.
20-39-78 NW¼, Prod. & Refiners BY-9.
18-40-78 NW¼, Prod. & Refiners S-2.
13-39-79 SE¼, Prod. & Refiners 1.
15-40-79 SE¼, Prod. & Refiners 4.
19-40-78 SE¼, Continental Prod. N-3.
19-39-78 NW¼, Continental Prod. R-3.
32-40-78 NW¼, Continental Prod. B-6.
23-40-79 NW¼, Wyo. Oil Fields 10-A.
23-40-79 SE¼, Wyo. Oil Fields 26-A.
26-40-79 NW¼, Wyo. Oil Fields 11-AX.
23-40-79 SE¼, Wyoming Asso. 11-A.
14-40-79 NE¼, Wyoming Asso. 1-A.
14-40-79 SW¼, Wyoming Asso. 11-A.
35-40-79 NW¼, Wyoming Asso. 11-A.
25-40-79 NW¼, Wyoming Asso. 8-AX.
24-40-79 SW¼, Wyoming Asso. 15-A.
14-40-79 NW¼, Wyoming Asso. 29-A.
15-40-79 NE¼, Wyoming Asso. 22-A.
14-40-79 NW¼, Wyoming Asso. 26-A.
34-30-79 SE¼, Wyoming Asso. 18-A.
23-40-79 NE¼, Wyoming Asso. 26-A.
3-39-79 SE¼, Salt Creek Cons. 26-AX.
2-39-79 NW¼, Salt Creek Cons. 21-AX.
31-40-78 SW¼, Salt Creek Cons. 36-A.
18-40-78 SW¼, Salt Creek Cons. 25-A.
31-40-78 NE¼, Salt Creek Cons. 31-A.
13-40-79 NE¼, Mountain & Gulf 36-A.
6-39-78 SE¼, Mountain & Gulf 19-A.
13-40-79 NE¼, Mountain & Gulf 12-A.
24-40-79 SW¼, Midwest Oil 26-A.
2-39-79 NW¼, Midwest Oil 23-AX.
15-40-79 SE¼, Midwest Oil 24-AX.
1-39-79 NE¼, Midwest Oil 23-AX.
26-40-79 NE¼, Midwest Oil 11-A.
35-40-79 NW¼, Midwest Oil 29-AX.
35-40-79 SW¼, Midwest Oil 29-A.
35-40-79 NE¼, Midwest Oil 26-A.
34-39-79 NW¼, Midwest Oil 13-A.
11-40-79 SW¼, Midwest Oil 30-A.
11-40-79 SW¼, Midwest Oil 22-AS.
27-40-79 SE¼, Midwest Oil 11-A.
36-40-79 NW¼, Midwest Oil 29-AX.
17-39-78 NE¼, Carter Oil P-7.
1-39-79 SE Mutual Oil 14-A.
34-40-79 SW¼, Mutual Oil 24-A.
12-39-79 Castle Rock 2, Ohio Oil 3.
34-40-79 SW¼, Mutual Oil 13-A.
2-39-79 SW¼, Mutual Oil 7-A.
7-40-78 NE¼, Pacific Oil 4-A.
28-39-78 NE¼, Mammoth Oil 101.
27-39-78 SW¼, Mammoth Oil 301-A.
20-39-78 SE¼, Mammoth oil 406.
28-39-78 SW¼, Mammoth Oil 302.
29-39-78 NE¼, Mammoth Oil 108.
21-39-78 SW¼, Mammoth Oil 302, 303.
28-39-78 NW¼, Mammoth Oil 202.
28-39-78 SW¼, Mammoth Oil 303.
28-39-78 NW¼, Mammoth Oil 205.
28-39-78 SE¼ Mammoth Oil 403.
29-39-78 SE¼, Mammoth Oil 402.
28-39-78 NW¼, Mammoth Oil 203.
3-38-78 NE¼, Mammoth Oil 101.
10-38-78 NE¼, Mammoth Oil 102.
11-38-78 NW¼, Mammoth Oil 201.
28-39-78 SW¼, Mammoth Oil 304.
29-39-78 NE¼, Mam. Oil 109, 110, 111.
33-39-78 SE¼, Mammoth Oil 402, 403.

Shut Down

22-40-79 NW¼, E. T. Williams 23-A.
34-40-79 SW¼, Boston Wyoming 35-A.
29-40-78 NW¼, Omaha Lusk Synd. 34-A.
28-40-79 SW¼, Jupiter Oil 27-AX.
25-40-79 SE¼, Midwest Oil 7-A.
2-39-79 NW¼, Wyoming Asso. 23-X.
7-39-78 SE¼, Chappell Oil 2.
3-39-79 NW¼, Duthie Oil 5.
10-39-79 NW¼, Hardendorf et al 1.
32-40-78 SW¼, Frantz Corp. 36-A.
20-39-78 SE¼, Taylor et al 1.
4-38-78 SE¼, R. C. Tarrant et al 1.
35-39-78 SW¼ Teapot Dome Synd. 15-A.
2-38-78 SE¼, Teapot Dome Synd. 34-A.
2-38-78 NE¼, Teapot Dome Synd.
32-40-78 NW¼, Collossal Synd. 1.

Rigs, 60; wells drilling, 143; total, 203.

LANCE CREEK

Wells Drilling

5-35-65 Elliott, Western States O. & L. 2.
5-35-65 Schuricht, Ohio Oil 1.
4-35-65 Cash, Ohio Oil 2.
5-35-65 Thompson, Ohio Oil 1.
26-36-65 SE¼, Buck Creek Oil 1.

Shut Down

18-35-65 NE¼, Union Oil 1.
East Part, Clark Prod. Co. 1.

Rigs, 0; wells drilling, 7; total, 7.

WARM SPRINGS, GRASS CREEK AND THERMOPOLIS

Rigs

18-46-98 Washakie, Ohio Oil 4.
23-44-93 Flavin, Ohio Oil 1.
5-47-90 Heltzler, Ohio Oil 1.
Gebo Dome, Utah Oil & Ref. 1.
23-42-90 SE¼, C. D. Markham.

Wells Drilling

26-46-100 NE¼ Producers & Refiners 1.
Thermopolis, H. D. Curtis et al 1.
27-46-98 Columbus Oil 1.
16-46-93 Curtis Oil 1.
36-43-91 Utah Oil & Ref. 1.
13-45-93 SW¼, Midwest Ref. Co. 1.
11-45-97 SE¼, Midwest Refining 1.
18-46-98 Meeteetse, Midwest Ref. 19-A.
19-46-98 State, Ohio Oil 39.
20-46-98 Mill Iron, Ohio Oil 68.
12-45-97 SW¼, Midwest Ref. 1.
18-46-98 Wiley, Ohio Oil 19.
Warm Springs Field, Leslie Oil Co.
31-48-99 SW¼, Midwest Ref. Co.

Shut Down

27-46-98 Rankin, Dickie Oil 1.
8-46-98 NW¼, Grass Creek Prod. 1.
17-46-98 NW¼, Tunadore Oil 1.
27-41-91 Wyoming Missouri Oil.

Rigs, 5; wells drilling, 18; total, 23.

BIG HORN BASIN

Rigs

31-48-100 SW¼, Midwest Ref. 1.
32-56-97 Howell, Occidental Oil.
Crystal Creek, C. W. Litton.
Cowley District, C. W. Litton.

Wells Drilling

33-56-97 Cross Gas Co., Ohio Oil 1.
30-58-99 Woods, Ohio Oil 14.
Lamb Anticline, Van Guard Oil 2.
22-58-99 SW¼, Midwest Ref. 1.
30-56-97 Producers & Refiners 1.
Torchlight Dome, Bruce Holding Co. 1.
32-58-99 NW¼, Thompson Elk Basin 1.
26-57-95 Transark Oil 1.
8-51-100 Sonners, Ohio Oil 1.
31-48-90 Brome, Ohio Oil 1.
23-53-100 Union Oil 1.
34- 9-23 Boyd Oil 1.
31-58-90 Tip 2, Midwest Ref. 1.
35- 9-23 Elk 11, Midwest Ref. 2.

Shut Down

29-52-93 NE¼ Ashland Wyoming 1.
22-48-91 SW¼, Olympic Oil 1.
17-49-91 Frontier Oil 1.
24-58-100 Beck et al.
Cody Dist., Pahaka Synd. 1.
2-56-97 Allen Oil 1.
23-58-97 Greenlees et al.
16-47-102 Big Horn Dev. 1.
Cowley Dist. Julious Williams et al 1.
Burlington Dist., Tatman Mt. Oil 1.
Deaver Dist., Mont. Wyo. Oil 1.

Rigs, 4; wells drilling, 25; total, 29.

LOST SOLDIER

Rigs

33-26-88 SE¼, Prod. & Refiners 2.
10-26-90 U. S. Petroleum 1.
16-25-86 NW¼, General Petroleum 4.
7-26-89 NW¼, Prod. & Refiners 4.
8-25-86 General Pet. 1.
31-25-86 Govt. land, General Pet. 3, 4.
22-26-87 Govt. land, Sand Hills Oil 1.
36-25-89 Govt. land, Prod. & Refiners 2.
Goode Lease, Texas Prod. Co. 2.
11-26-90 NW¼, Bair Oil 38.
3-26-90 SW¼, Hughes Oil 3-B.
21-26-86 Portland Wyoming Oil 4.

Wells Drilling

35-26-88 SW¼, Prod. & Refiners 2.
35-26-88 NE¼, Prod. & Refiners 4.
24-26-87 SW¼, Prod. & Refiners 20.
34-26-88 SW¼, Kasoming Oil C-2.
3-26-90 SE¼, Bair Oil 39-A.
25-26-88 SW¼, Kasoming Oil D-1.
34-27-90 E½ Annabelle Wyoming 1.
9-25-86 SW¼, Sand Hills Oil 1, 2.
26-26-86 Portland Wyoming 1, 2, 3.
3-26-90 SW¼, Hughes Oil 2-B.
2-26-90 SE¼, Prod. & Refiners 1.
33-26-88 NE¼, Prod. & Refiners 1, 3.
11-26-90 Bair Oil 36-A, 37-A.
3-25-87 Govt. land, General Petro. 1.
Goode Lease, Texas Production Co. 1.
29-26-87 Producers & Refiners 1.
25-26-86 Producers & Refiners 22.
22-26-89 Producers & Refiners 1.
36-26-88 Ohio Oil 1.
1-23-89 Producers & Refiners 1.
14-26-90 NW¼ Bair Oil B-3.
25-26-89 SW¼, Bair Oil F-1.
10-26-90 NE¼, Bair Oil C-2.
Eight Mile Lake, Hatfield Oil Co. 1.

Shut Down

7-26-89 Producers & Refiners 3.
1-25-88 NE¼, M. & S. Syndicate 1.
10-26-88 Renroh Syndicate 1.
35-25-88 M. M. Armstrong 1.
11-26-87 Govt. land, Emery Synd. 1.
2-25-87 Govt. land, General Pet. 1.
3-25-87 Govt. land, General Pet. 1.
16-25-86 Govt. land, General Pet. 3.
31-26-86 Govt. land, General Pet. 1.
14-25-89 Govt. land, Columbia Oil 1.
16-26-89 United States Petroleum.
5-24-86 Govt. land, Ohio Oil 1.
8-25-86 Govt. land, Ohio Oil 1.
8-25-86 Govt. land, U. S. Waugh 1.
25-86-89 Govt. land, Com'w'lth. Pet. 1.

Rigs, 12; wells drilling, 43; total, 55.

ROCK RIVER DISTRICT

Rigs

34-20-78 Govt. land, Western Pet. Co.
3-17-76 Govt. land, Western Holdings Co.

Wells Drilling

34-20-78 State land, Ohio Oil 10, 11.
14-15-75 SE¼, Wyo. Hollow Basin Co. 1.
26-21-79 Southwestern Petroleum 2.
3-19-78 H. & C., Ohio Oil 2.
32-16-74 Govt. land, G. A. Briggs.
11-19-78 H. & C., Ohio Oil 2.
27-20-78 D. C. Co., Ohio Oil 2.
26-16-77 Coughlin, Ohio Oil 1.
25-21-79 SE¼, Southwestern Pet. 1.

Shut Down

4-19-78 State land, Hutton Lake Oil 1.
32-16-74 Govt. land, Spindle Top Oil 1.
18-15-75 Govt. land, Apex Refg. Co. 1.
18-15-75 Govt. land, Pet. Oil Fields Co.
12-20-77 Govt. land, McLaughlin et al.
10-18-77 Govt. land, Carbon Oil 1.
11-19-76 Govt. land, Dutton Creek O. & G. 1.
21-21-76 Govt. land, McMurray et al.
20-18-78 Utah O. & R. Co.
36-19-78 State, Rock Creek Prod. 1.
32-21-78 Govt. land, Ross et al.
20-18-77 Wyoming Rock Creek 1.

Rigs, 2; wells drilling, 22; total, 24.

FREMONT COUNTY

Rigs

23-32-95 Sand Draw, Prod. & Refiners 2.
2-39-83 Chemical Dome, Lux Oil Corp.
Sage Creek, Washakie Syndicate.
29-34-92 Oliver et al.
16-39-93 Green Consolidated Oil.

Wells Drilling

Circle Ridge, Union Oil 2.
24-23-96 Red Desert Oil Syndicate.
Lysite District, Miners Oil & Gas 1.
15-34-90 Ward Oil Co. 1.
27- 6- 3 Kinney Coastal Oil 1.
9-32-95 Sand Draw, Prod. & Ref. 2.
15-32-95 Sand Draw, Prod. & Ref. 3.
14-32-95 Riverton Drilling Co.
7-28-92 NW¼, Southwestern Pet. 1.
8- 5- 2 Marine Oil 2.
17-27-95 Sage Creek Pet. 2.
Burley Dome, Burley Dome Oil 1.
26- 5- 2 Connelly Oil & Land Co.
Wind River District, Teton Pet. 1.
2-27-92 Fremont Consol. Petro. 1.
25-27-92 Amer. Workers Oil Fields.
14-28-93 Amer. Workers Oil Fields

Shut Down

Derby Dome, Derby Dome Oil 8, 9.
10-36-94 Myrin Oil 1.
14-35- 2 Producers & Refiners 1.
2-33-95 Apex Oil.
Shoshoni District, Indian Oil 1.
Chemical Dome, Shoshoni Syndicate.
Lower Muskrat, Minn. Western Oil 1.
16-38-93 Howe Oil & Gas.
McComb Dome, Northern Wyo. Oil 1.
Maverick Springs, Maverick Spgs. Dev. Co. 1.
Dutton Basin, Seal Oil Association.

Rigs, 5; wells drilling, 29; total, 34.

MULE CREEK

Shut Down

36-41-61 Western Dakota Oil 1.
30-39-60 Western States Oil & Land 1.
6-38-60 Rheinhold Syndicate.

Rigs, 0; wells drilling, 3; total, 3.

OSAGE

Rigs

17-46-63 Baldwin et al.
17-46-63 McKenna Brothers.
17-46-63 Supreme Petrol.

Wells Drilling

10-45-61 Paul Young.
7-46-63 Tom Don.
31-46-63 Newcastle Oil.
17-46-63 Osage Oil Trust.
5-46-63 Dakoming Oil.

Shut Down

18-46-63 Noco Petroleum 1.
4-46-63 C. H. S. Co.
6-46-63 Bock Bros.
5-46-63 Independent Producers.
21-46-63 Quinn Oil.
33-46-61 Paul Young.
9-46-63 Cody Osage Oil.
8-46-63 Doherty Interests.
31-47-63 Condit Petroleum.
32-47-63 Condit Petroleum.
17-46 63 Wilson & Warren.
20-46-63 Osage Upton Oil.
5-46-63 Sidney Oil.
28-46-61 Paul Young.
24-46-63 Fagan Interests.
24-46-64 Midwest Ref.
4-46-63 Atlas Oil.
19-46-63 Sinclair Wyoming 3, 4.
25-46-64 Fletcher Bros. 2.
1-46-63 Webster Oil.

Rigs, 3, wells drilling, 26; total, 29.

NATRONA COUNTY

Rigs

7-33-83 Marquard, Haskell Interests.
18-33-83 NW¼, California Oil 4.

Wells Drilling

18-33-83 NW¼, California Oil 3.
15-32-82 Danaher Oil Syndicate 1.
36-37-82 SE¼, Midwest Ref. 1.
31-40-80 Comet Syndicate.
9-34-82 Bradford Wyoming Oil 1.
20-37-82 NW¼, Wyland Syndicate 1.
Poison Spider Fields, Fargo Oil 24, 25, 36.
32-34-77 Carter-Continental 1.
10-36-85. Boone Dome, New York Oil.
35-35-84 E½, Alaska Development 1.
35-35-84 W½, Alaska Development 2.
Two Bar Dome, Casper Syndicate 1.

Shut Down

2-34-84 California Oil 1.
Johnson Ranch, Newton et al 1.
4-29-81 Kinney Coastal Oil.
9-29-81 Casper Bolton Syndicate 2.
12-34-84 Cheney et al.
Lox Anticline, Lox Syndicate.

Rigs, 2; wells drilling, 20; total, 22.

LINCOLN AND UINTAH COUNTIES

Rigs

3-26-113 Wyoming Reserve Oil 1.
12-29-93 Federal Drilling Co.
12-15-118 Producers Oil & Gas.
Waterfall Dome, Klo-Ro-Po Syndicate.

Wells Drilling

30-14-118 Hyland Oil & Gas.
Afton District, Wyoming Idaho Oil 1.

Shut Down

11-21-115 Waterfall, Gulf Coast Oil.
Cretaceous Field, R. N. Co. 1.
28-28-112 Geo. Downiet et al 1.
Big Piney, Lincoln Idaho 3.
Cumberland Dome, J. A. Moore.
1-29-112 Utterback Syndicate.
1-28-114 Chas. Lackey et al 1.
Big Piney, Piney Crescent Oil.
Corder Ranch, Union Consol. Oil.
Dry Piney, Nippon Oil.
Waterfall Dome, Consolidated Petroleum.
Carter Field, Wyoming Illinois Oil 1.
Fossil Field, Wyoming Pacific Oil 1.
14-21-117 Hersman Oil.
Davison Dome, Gulf Coast Oil.

Rigs, 4; wells drilling, 17; total, 21.

BAXTER BASIN

Rigs

10-16-104 SE¼, Midwest Ref. 29.
27-17-104 SE¼, Montacal Oil 1.
7-17-103 Petrogas Oil 1.

Wells Drilling

26-17-104 SE¼, Associated Oil 1.
2-17-104 NE¼, Midwest Ref. 1.
24-17-104 SW¼, Montacal Oil 1.
13-17-104 SW¼, Prod. & Refiners 1.
36-18-104 NE¼ Midwest Ref. 1-X.
25-18-104 SE¼, Midwest Ref. 29.
23-17-104 Associated Oil 1.
36-17-104 NW¼, Prod. & Refiners 1.
22-16-104 A. J. P., Ohio Oil 1.
14-17-104 Hay, Ohio Oil 1.

Shut Down

30-18-104 Midwest Ref. 6-AX.
8-16-104 NE¼, Montacal Oil 1.

Rigs, 3, wells drilling, 12; total, 15.

MISCELLANEOUS

Rigs

L. A. K. Ranch, Newcastle Dist., Ferguson et al 1.
Dewey Dome, Mexico Wyoming Oil.
19-32-63 Teton Place Syndicate.
Moorcroft District, Fee & Rice.
15-51-67 Greytop Oil.
33-44-64 Cook et al.
Little Missouri, Union Oil.
32-48-63 Wyoming Dev. Syndicate.
Moore Creek, Frederick Oil & Gas.
Rozet Dome, Omaha Syndicate 1.

Wells Drilling

20-21-80 Producers & Refiners 3.
16-21-80 Producers & Refiners 1.
28-47-65 Gose Syndicate.
Billy Creek, Carter Oil 4.
22-45-62 Shaw & Scott.
Colony District, Walthers & Barnard.
Clay Basin, Producers & Refiners 1.
Lingle District, Foreman et al.
21-42-82 Carter Oil 3.
8-68-65 Producers & Refiners 1.
Rozet Dome, Rozet Dome Oil 1.
20-21-80 Producers & Refiners 1.
La Prele Dome, Armour Syndicate.
5-31-70 Douglas District, Frye & Dye.
17-48-82 Billy Creek, Carter Oil 2.
Glendo District, Nebraska Syndicate.
Vernon Dome, Walter Hargis et al.
9-41-80 Newton & Maxwell.
16-42-79 Atlantic Drilling 1.
23-39-70 Woman's National Oil 1.
Pickett Lake, Annabell Wyoming 1.
16-44-62 Midwest Ref. 1.

Shut Down

Moorcroft Field, Southwest Oil.
Stroner Ranch, Illinois Wyoming Oil.
Cottonwood Dome, Baker Petroleum.
Moorcroft District, McWhorter interests.
Wakeman District, Miss. Delta Oil.
17-50-68 Trial Creek Oil.
17-51-65 Houghton Oil.
Barger Ranch, Wyo., Hi Gravity Oil.
Poison Creek, Crook Co., Mike Henry Oil.
33-36-78 Turner Creek Oil.
Page Dome, Crook Co., Hover Bros.
Douglas District, Reliance Oil.
Douglas District, Ajax Wyoming Oil.
Horse Creek, National Oil.
7-37-72 Cheyenne River Oil.
26-27-67 Platte Wyoming Oil.
18-39-68 Glendo Oil & Gas.
11-31-71 La Bonte Oil & Gas.
1-16-70 Blaiser Syndicate.
2-25-95 Lost Creek Consol.
Thornton Field, Neffay Bros.
Rigs, 10, wells drilling, 43; total, 53.

MONTANA

CAT CREEK

Rigs

1-15-28 SE¼, Custer Oil & Gas.
1-15-28 SE¼, Mid Northern Oil 2.
12-15-28 NE¼, California Co. 4.
2-15-28 SE¼, California Co. 1.
23-14-28 NE¼, Winnett Pacific Oil.

Wells Drilling

12-15-28 NE¼, California Co. 3.
28-16-28 Republic Peerless Oil 1.
9-15-29 NE¼, Peerless Oil 2.
14-15-29 Green, Frantz Corp. 8.
6-15-29 O'Neil, California Co. 1.
7-15-29 NW¼ Fifty Six Petro.
7-15-29 NW¼, Hogan Oil 2.
12-15-28 NE¼, Shaffer Oil & Ref.
10-15-29 Fifty Six Petro.
9-15-29 SE¼, Mid Northern Oil.
29-14-29 Flatwillow Oil 1.
27-15-30 Frantz Corp.
17-15-30 Baker Petro.
34-15-30 Absoraka Oil Dev.
22-15-30 A. B. Miller.

Shut Down

8-15-29 Seattle Silver Bow.
11-15-30 Helena Cat Creek.
20-15-30 Montacal Oil.
9-15-29 Shaffer Oil & Ref.
14-15-20 Sure Shot Oil.
8-15-29 Logan Corp.
15-15-30 Montana Syndicate.
20-15-30 Wharton Rose Syndicate.
27-15-30 Bragg & Johnson.
24-15-30 Swartz et al.
11-15-30 Miles City Oil.
3-15-29 Zinc City Oil.
Rigs, 5; wells drilling, 27; total, 32.

KEVIN SUNBURST

Rigs

22-35- 2 Pewters Homestake Ex. 4.
21-34- 1 Stockmens Bank, Potlach O. & G. 1.
20-33- 2 Jarrett Sunburst O & G.
25-35- 2 Stephenson, Campbell 1.
9-35- 2 Bruins, Western Pet. Ex. 4.
25-36- 2 Kaskin, Ohio Oil 1.
4-35- 2 Baker, Ohio Oil 9.
30-35- 2 Broadwell, Hecla Oil 1.
3-33- 1 Seward, Sunburst O & G 1.
7-35- 2 Kramer, Hager Stevenson 1.
16-35- 1 State, Potlatch O. & G.
20-35- 2 SE¼. Rainbow Oil 1.
2-35- 2 Whitman, Homestake Ex. 1.
7-31- 2 Jones, Olympic Oil 1.

Wells Drilling

21-34- 2 Kester, Mutual Oil 1.
21-34- 2 Halter, Mutual Oil 1.
21-35- 2 Halter, T. S. Hogan 1.
32-35- 2 Pewters, Homestake Ex. 3.
4-35- 2 Swears, Western Pet. Ex. 1.
9-35- 2 Howling, Mid Northern Oil 5.
24-35- 2 NW¼, Spartan Montana 1.
4-34- 2 Ostrick, Sweetgrass Oil 2.
9-34- 2 DeGroth, Shoshone Oil 1.
6-32- 2 State, Canada Montana 1.
34-35- 2 NW¼, Maybelle Oil 1.
25-34- 3 Lewis, Guarantee Oil 2.
26-35- 2 State, Nichols et al 1.
12-34- 1 Peterson, Lucky Forty Oil 1.
29-35- 1 NW¼, Bitter Creek Oil 1.
11-34- 4 California Co. 1.
Helmerick Lease, Montana Giant 3.
Howling Lease, Carter Oil 1.
3-34- 2 McCarthy & West.
24-33- 1 Shelby Syndicate.
Andreich Lease, Homestake Ex. 3, 4.
3-35- 2 Davey, Ohio Oil 7, 8.
14-34- 2 Jenkins, Ohio Oil 1.
29-34- 1 Stevens, Troy Sweetgrass 1.
22-35- 2 Lorenson, T. S. Hogan 1.
8-34- 2 Herley, Swartz Kevin 1.
29-35- 2 Moore, Canadian Amer. Oil 1.
21-35- 2 State, Regina Shelby 1.
9-35- 2 Swears, C. Beardsley 1.
11-35- 2 Engemon Stapleton Oil 1.
8-35- 2 Beaupre, Hecla Sunburst 1.
29-36- 2 Malcolm, National Ex. 1.
2-35- 1 Sweetgrass, Arch Consol.
28-37- 2 McAlpine, Spartan Oil 1.
20-35- 2 Halter, Kevin Roberts 1.
28-35- 1 Dipple, Mountain Sts. Pet. 1.
15-35- 3 Lincoln, California Co. 2.
26-35- 2 Abell, California Co. 2.
20-35- 2 Halter, Sunburst Prod. Co. 2.
10-35- 2 Petters, Carter Oil 1.
30-35- 1 Emmons, Dakota Montana 1.
7-34- 1 Carlson, Dakota Montana 1.
4-35- 2 Cornett, Griffith Oil 1.
17-35- 2 Larsen, Ohio Oil 3.
35-35- 2 O'Haire, Ohio Oil 1.

Shut Down

21-35- 2 McGowan, Holding & Royl. Co. 1.
13-35- 3 Campbell, Campbell 5.
6-34- 1 NW¼, Big West Oil.
16-34- 2 NW¼, Rainbow Oil 2.
4-36- 2 Coe Oil 1.
21-35- 3 NW¼, Shaffer Oil.
1-34- 2 NE¼, Sunburst O. & G.
35-36- 3 NE¼, California Co. 1.
Rigs, 14; wells drilling, 55; total, 69.

MISCELLANEOUS

Rigs

Porcupine Dome, Stellar O. & G. 7.
Great Falls, Virgelle Oil 1.
24-15-15 Fullerton Oil 1.
6-13- 4 Tri City Oil.
Near Hibbard, Hibbard Oil 1.

Wells Drilling

7-27- 7 NW¼, Circle Oil 1.
23-23- 4 Flume, Montana Giant 1.
18-23- 4 Bennett, Montana Giant 1.
4-27- 6 NW¼, Gypsy Oil 1.
18-23-21 Lake, Carter Oil 1.
2-28- 3 NE¼, Dry Fork Oil 1.
21-24-24 Phillips Dev. Co., Ohio Oil 1.
Bauley Dome, Montana Equipment Co. 1.
Muddy Creek, Mountaineer Oil 1.
14-18- 4 Eliakin Oil 1.
26- 1-21 Hepp, Mid Northern 1.
26- 1-21 Moddrell, Mid Northern 2.
18-16-26 Neudigate et al.
16-13-14 Fulton Oil 1.
4-27- 6 NW¼, Gypsy Oil.
20-24-24 Phillips, Ohio Oil 1.
14-11-24 Devils Basin, Fifty Six Pet.
15-37- 7 Empire Montana Oil.
9-11-24 NW¼, Absoraka Oil Dev. 1.
5- 1-31 NE¼, Grimstead & Brown.
Ragged Point, Flynn Bros.
Antelope Point, Hardtimes Oil 1.
2-26- 6 Marion Edwards.
Rattlesnake Butte, Carter Oil 1.
29-14-29 Whaley et al.
24- 4-61 Absoraka Oil Dev. 1.
26-10-39 Stellar Oil & Gas 6.
9-10-39 Stellar Oil & Gas 5.
23- 4-16 Consolidated O. & G.
7- 4-22 Security Pet. 1.
35-32-32 SE¼, Bowdoin O. & G.
24- 5- 8 SW¼, Potter Basin Oil.
9-25- 9 Hager Stevenson 1.
27- 7-13 Harlowton O. & G. 1.
4- 8-33 Western States O. & L.
17-11-29 Absoraka Oil Dev.
Milk Creek, Hogan & O'Neil.
Milk River, Homestake Expol.
17-11-29 Absorada Oil Dev.
Wilsal Dome, Sheilds Valley Oil.
4-17-20 California Co.
10-13-34 Absoraka Oil Dev.
Near Heath, Jackson Dome Syndicate.
Great Falls Dist., Cascade Oil & Gas.
22- 9- 3 Greater Great Falls Oil.
18-21-19 Kansas Montana Oil.
21-14-28 Black Hawk Oil.
2-22-26 Bitter Creek Oil.
2-32-33 Golden West Oil.

Shut Down

Judith Basin, National Ref. Co.
9-11-24 Tri City Oil.
25-16-27 Alexander Bros.
18-16-26 Walker Bros.
18-16-26 Morrow Oil.
25-17-22 Cosmos Oil.
15-17-23 Boston Montana Oil.
12-11-23 Arsted Oil.
Ingomar Dome, Ingomar Dev. Co.
Devils Basin, Alberta Block Coal Co.
Big Coullee, Midland Pet.
3- 4-23 Hoosier Pet.
12-18-13 Arrow Creek Pet.
28-13-25 Wayne Pet.
3-18-20 Big Bud Oil.
26- 7-12 Elk Pet. Syndicate.
25-32-19 Bowes Structure Oil.
36- 2- 7 Gladys Belle Oil.
4- 7-32 Soap Creek Oil.
Coalwood Dome, Anna May Oil.
Hailstone Basin, Hailstone Basin Oil.
12-11-24 Von Wagenen et al.
Devils Basin, Montana Central Oil.
Devils Basin, Monarch Oil.
24-11-24 Van Duzen Oil.
12-11-15 Minnesota Montana Oil.
35- 7-34 Red River Oil.
25- 5- 8 Portland Syndicate.
30- 2-21 Columbus Oil.
22- 1-21 Harrison Oil & Gas.
24- 5-17 Unit Oil & Gas.
23- 2- 5 Fox et al.
19-11-23 Montana Pioneer Oil.
23- 3-24 Davis Creek Syndicate.
33- 5-28 Beauvois Oil.
28- 4-29 Fifty Six Petroleum.
12-11-13 Kalispell Syndicate.
13-13-20 Omaha Petroleum.
32- 1-38 Tennessee Montana Oil.
6- 5-25 Gray Eagle Oil.
Devils Basin, Oriole Oil.
23-11-24 Allen Oil.
9-11-25 Spokane Roundup Oil.
21-11-39 Success Refining.
8-35- 1 Idaho Montana 1.
20-30- 1 A. M. Barringer.
31-14-45 Crow Rock Oil.
1- 6-20 Bitter Root Oil.
4- 4-20 Lewis Canfield Co.
6- 6-17 Armsted Oil.
1-10-21 Williams Oil & Gas.
2- 2-26 Clarks Fork Oil.
25- 8- 9 Beaverhead Alberta Oil.
11- 1- 1 Ruby Ridge Oil.
20- 7-24 Greater Montana Oil.
24-32-14 Bear Paw Oil.
25- 5-15 Hoyt Montana Oil.
2- 2-12 Montana Pacific Oil.
12-18-15 Eugene Oil.
10-34-34 Mid Northern Oil.
13- 3-22 SW¼, Lawson Ritter.
Rigs, 5; wells drilling, 110; total, 115.

UTAH

MISCELLANEOUS

Wells Drilling

Boundary Butte, Midwest Oil 1.
34-25-21 Big Six Oil.
16- 2- 5 State Western Empire Oil.
19-42-18 Govt. land, Monumental Oil.
35-42-14 Wilson Cranmer Co.
6- 2- 8 Ohio Oil 1.
Cresent Dome, Crescent Eagle Oil.
31-42-18 Union Oil of Utah.
Woodside Dome, Utah Oil Ref. 1.

Shut Down

13-14-19 Castle Dale Oil.
27-16- 3 Producers Oil.
Lakeside Dome, W. R. Holmes.
Diamond Fork, Franco Utah Oil.
Diamond Fork, Gustaven Oil.
17- 4- 6 Ute Petro., Utah Southern Oil.
25-13- 1 Cache Valley Oil Assn.
Box Elder County, Nebeker Interests.
2-17- 3 Utah Central Oil.
Moffat Dome, Uintah Explor.
Harrisburg Dome, Virgin Oil.
Cainville Dome, John Finnerty.
Evans Claim, Uintah County, U. S. Oil.
Hill Creek, Hill Creek O. & R.
Hill Creek, Mutual Oil.
Rigs, 0; wells drilling, 24; total, 24.

WYOMING

Wells Completed

17-33-76	Humphrey, Mutual Oil 3....	15
13-39-79	NW¼, Kasoming Oil D-4....	30
19-40-78	NW¼, Kasoming Oil F-5....	400
11-39-79	NE¼, Kasoming Oil B-19...	600
17-39-78	SE¼, Marine Oil 4.....	50
19-40-78	NE¼, Producers & Ref. 3....	550
32-40-78	NE¼, Producers & Ref. 1....	250
6-39-78	SE¼, Producers & Ref. 2...	115
15-40-79	SE¼, Producers & Ref. 6...	350
32-40-78	SE¼, Chappel Oil 1.....	200
30-40-78	NE¼, Continental Pro. B-7..	329
30-40-78	NE¼, Continental Pro. B-8..	150
5-39-78	SW¼, Carter Oil R-7.....	60
5-39-78	SW¼, Carter Oil R-8.....	70
29-40-78	NW¼, Kinney Coastal 18-A..	336
19-39-78	NW¼, Kinney Coastal 9-A..	50
32-40-78	NW¼, Schuster Bros. 3.....	550
1-39-79	SE¼, Mutual Oil 12-A.....	200
13-40-79	NW¼, Wyoming Asso. 6-A....	300
26-40-79	SW¼, Wyoming Asso. 26-AX	400
1-39-79	NE¼, Wyoming Asso. 14-A..	200
26-40-79	SW¼, Wyoming Asso. 11-A..	400
23-40-79	SW¼, Wyoming Asso. 26-AX	360
27-40-79	SE¼, Wyoming Asso. 26-AX	300
15-40-79	SE¼, Wyoming Asso. 22-A..	114
3-39-79	SE¼, Salt Creek Cons. 12-AX	1000
34-40-79	SE¼, Salt Creek Cons. 26-A.	300
13-40-79	SE¼, Mountain & Gulf 6-AX	300
11-40-79	NE¼, Mountain & Gulf 25-A.	360
13-40-79	NW¼, Midwest Oil 6-A.....	250
13-40-79	SE¼, Midwest Oil 1-AX....	300
23-40-79	NW¼, Midwest Oil 9-A.....	350
26-40-79	NE¼, Wyo. Oil Fields 11-A.	900
26-40-79	SW¼, Midwest Oil 11-A....	500
27-40-79	SE¼, Midwest Oil 26-AX...	400
25-40-79	NW¼, Midwest Oil 8-AX....	1280
24-40-79	SW¼, Wyoming Asso. 4-A..	1190
22-40-79	NE¼, Midwest Oil 6-A.....	240
31-40-78	SE¼, Salt Creek Cons. 3-A.	312
35-40-79	SW¼, Midwest Oil 11-A.....	400
34-40-79	SE¼, Wyoming Asso. 19-A.	1040
19-39-78	SW¼, Mosher Syndicate 3...	200
20-39-78	SE¼, Mammoth Oil 404....	675
20-39-78	SE¼, Mammoth Oil 408....	100
11-38-78	SW¼, Mammoth Oil 201-A..	114
10-38-78	NW¼, Mammoth Oil 201-A..	gas
20-39-78	NE¼, Mammoth Oil 105....	100
29-39-78	NE¼, Mammoth Oil 104....	65
29-39-78	NE¼, Mammoth Oil 105....	60
34-39-78	NW¼, Mammoth Oil 202....	100
33-39-78	NE¼, Mammoth Oil 102....	gas
28-39-78	SE¼, Mammoth Oil 402....	100
28-39-78	SE¼, Mammoth Oil 403....	400
28-39-78	SE¼, Mammoth Oil 404....	100
29-39-78	SE¼, Mammoth Oil 401....	120
28-39-78	SW¼, Mammoth Oil 306....	200
3-35-65	Bell Buck Creek Oil 4.....	dry
19-58-99	Elk 6, Midwest Ref. 24.....	10
3-55-97	Griffin, Allen Oil 4.....	gas
11-26-90	SW¼, Producers & Ref....	2000
11-26-90	NW¼, Producers & Ref. 4....	450
26-26-87	Govt. land, Prod. & Ref. 12..	500
18-33-83	NW¼, California Oil 2.....	100

Wells completed	63
Production	20835
Dry	1
Gas	3
Gas production	16,000,000

MONTANA

Wells Completed

12-15-29	Catlett, Mid Northern Oil 3..	35
14-15-29	Green, Mid Northern Oil 18..	25
22-15-29	SW¼, Mosby Consol.	10
8-15-29	Musselshell Valley	10
1-15-28	Leverdeau, Mid Northern Oil 1	dry
21-35- 2	McManus, T. S. Hogan 1.....	dry
24-34- 2	Morton, California Co. 3....	dry
11-34- 2	Kruger, Sunburst O. & G....	dry
21-35- 2	Helmericks, Mutual Oil 3....	35
16-35- 2	State, Mutual Oil 2.....	75
22-35- 2	Helmericks, Mutual Oil 4....	25
16-35- 2	State, Mutual Oil 4.....	75
10-35- 2	Bruins, West. Pet. Ex. 5....	50
36-35- 2	State, Adams Land Co.....	35
2-35- 2	Barr, Ohio Oil 2.....	gas
3-35- 2	Baker, Ohio Oil 7.....	15
3-35- 2	Baker, Ohio Oil 8.....	58
15-35- 2	Emmert 2, Ohio Oil 4.....	50
25-35- 2	Essex, National Explor.	25
30-35- 2	Moore, Queen City Oil.....	25
17-35- 1	Grass, Potlatch O. & G....	dry
22-35- 2	Pewters, Homestake Ex. 2....	25
15-35- 2	Penney, West. Pet. Ex. 2....	75
9-35- 2	Howling, Homestake Ex. 3...	1500
	Andreich Lease, Homestake Ex. 2....	100
25-35- 2	Stannard, Beaver Oil 1.....	50
4-35- 2	Swears, Western Pet. Ex. 1..	35
9-35- 2	Howling, Mid Northern Oil 4..	50
22-35- 2	Helmericks, Mutual Oil 6....	50
17-25-17	Sand Coulee, Ohio Oil 1.....	gas
28-34- 1	NW¼, Beardsley Dutton O. 1	dry
32-23- 4	NW¼, Gordon Campbell 1...	dry
14-25- 3	SE¼, Gypsy Oil 1.....	dry
12-36- 5	SE¼, Frazier et al 1.....	dry

Wells completed	34
Production	2523
Dry	9
Gas	2
Gas production	9,500,000

OIL MEN ASSISTING KANSAS INVESTIGATION

WICHITA, Kans., Oct. 8.—Attorney General C. B. Griffith is continuing his survey of conditions in the petroleum industry in Kansas. Facts ascertained by Attorney General Griffith as well as by attorneys general of other States, will be presented at the meeting of attorneys general at Chicago October 15.

F. A. Pielsticker, vice president of the Skelly Oil Co., and H. G. James of the Derby Oil Co., appeared before Mr. Griffith and went over conditions in the oil industry. Both Mr. Pielsticker and Mr. James took the position that if the Standard Oil Co. of Indiana is the price maker for the State, it is because the Standard simply is the dominant factor in size. They held that because the Standard is large supplies no logical reason to attack it.

The two oil men showed the great loss to the State at large through the present depression in the oil industry, in reduced lease rentals, production royalties and oil field labor. They insisted prices to the public, based on cost, had not been unfair, and declared under the present reduced prices in the industry is losing money and is being hurt in a manner against the best interest of the State.

They agreed to furnish information to show by reason of the freight rate situation, cheap gasoline can be made from California crude and shipped from gulf ports through Oklahoma and Kansas fields into the northern territory of the latter at prices less than it can be produced and manufactured in this district.

HEADS MECHANICAL ENGINEERS

Lee C. Moore of Tulsa has been elected head of the Mid-Continent section of the machine shop practice division of the American Society of Mechanical Engineers. His territory includes Kansas, Oklahoma, Louisiana and Texas.

Other officers in this section are: Hollis P. Porter, Gypsy Oil Co., vice president; L. C. Bigwell, Tulsa, secretary, and H. R. Auerswald, Shidler, treasurer. Members of the executive committee are: W. R. Holway, Tulsa; Prof. B. N. Wilson, University of Arkansas, Fayetteville, Ark.; H. B. Barnard, Tulsa; Charles P. Buck, Topeka, Kan.; Charles A. Daily, Jr., Shreveport, La.; M. H. Gilcrest, U. S. Zinc Co., Amarillo, Texas.

The society is arranging for Management Week, to be held throughout the country October 22-27. More than 50 local sections will cooperate with 25 sections of other national societies.

MORE OIL REGULATIONS

AUSTIN, Tex., Oct. 8.—Legislation to empower the Texas Railroad Commission to regulate the oil industry, to protect independent producers and refiners from conspiracy or antitrust manipulations by "trust" interests, will be submitted by Governor Neff, should the Governor find a special session necessary before he retires from office, January, 1925, Governor Neff has told Representative W. C. Morgan of Liberty, Mr. Morgan stated. Morgan recently filed application with the commission for an investigation of the oil industry, and charges of alleged conspiracy. The commission held it was limited to oil and gas conservation measures.

6-39-7E NW¼, Blackstone Salt Crk. A-3.

12-45-9W SW¼, Midwest Ref. 1.

Lysite District, Miners Oil & Gas 1.

Rigs, 3, wells drilling, 12; total, 15.

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

CLASSIFIED WANTS

COPY must be in our office Friday prior to date of issue. Average 6 words to the line. Cash in advance

LEASES—PRODUCTION

FOR SALE BY OWNER—10 bbls. 40 gravity settled production over 3 years old, from six wells on 120 acres. About 18 more drilling locations and deeper sand untouched. Complete equipment, including new band wheel power, pumper residence, pulling machine, etc. Will sell for less than equipment value, for cash. Box 243, The Oil and Gas Journal, Tulsa, Okla.

WILL EXCHANGE—80 acres, shallow, proven territory in Kansas, runs to 1927, value $2,000, for some good wildcat anywhere. W. J. Saunders, 4448 Troost Ave., Kansas City, Mo.

FOR SALE—

FOR SALE IN FEE—Five acres in Section 32, Township 3 south, Range 2 west, Carter County, Oklahoma. Address M. O. Musser, West Union, Iowa.

FOR SALE—Seminole County, Oklahoma, farms; oil leases; royalties. C. B. Hyde, Mercantile Bldg., Oklahoma City, Okla.

FOR SALE—29x14-foot Boye & Emmes lathe quick change; 26x6-foot planer; No. 1 Cincinnati cutter grinder; No. 2 Leblond milling machine universal complete; No. 1 style, Landis 11x20-inch piston grinder. Kingman Machine Shop, Enid, Okla.

FOR SALE—At bargain prices, oil and gas leases, production and royalties in the Kentucky shallow fields. For full particulars and maps, address W. P. Harley, Bowling Green, Ky.

I HAVE wildcat acreage for sale in vicinity of well located by the same geologist who discovered the Sayre oil field and recommended by him to be as safe an investment as the Sayre Field. I can sell for $2 per acre and up. Dr. W. R. German, Canadian, Texas.

FOR SALE—Oil and gas leases in Cumberland, Monroe and Metcalfe Counties, Kentucky. F. L. James, Edmonton, Ky.

$1.00 PER ACRE for 1,000 or 5,000 acres in the Panhandle of Texas on surveyed structure. Well drilling to prove this territory. No rental due till 1926. A snap for someone. If interested, write and will forward printed geologist's report and map. 300 Alworth Bldg., Duluth, Minn.

MEXICO

100,000 acres valuable agricultural, fruit and timber lands in tropical Mexico. Oil seepage on land. Agents wanted. For sale by H. C. Jenkins, Austin, Texas.

FREE ON REQUEST—Map of Allen County, Kentucky, showing pools. Greatest shallow oil field in the world. Production on pipe line and leases with wells equipped and unequipped, near pipe line. Splendid opportunity for oil companies or syndicating. Brokers and promoters protected. Lock Box 4, Scottsville, Ky.

Unimproved timber land in Laclede County, Missouri; 160 acres $1,200; 80, $600; 40, $300; $25 down and 10 per month, no interest; other bargains. Write [illegible] Holt Realty Co., Lebanon, Mo.

FOR SALE—Ninety acres Bear Creek, Cumberland County, Kentucky. This lays 800 feet north of E. M. Treit & Co. No. 1 on the Riddle farm, which is just in at 1,020 feet and looks like a big one; within one-half mile of C. C. Smith farm, which has six producers and right on same structure. Will consider sale of one-half interest. Write J. F. Ross, Burkesville, Ky.

OIL FIELD LEGAL BLANKS—Fifteen years' specializing in blank forms. Royalty, deeds, leases, plats, gauge books, releases, well logs, field time books, gasoline plant reports; stock certificates, corporate and common law. Catalog on request. Burkhart Printing & Stationery Co., Tulsa, Okla.

POTTAWATOMIE COUNTY leases and royalties. B. H. Rowlett, Tecumseh, Okla.

LEASES—PRODUCTION

TEN CENTS AN ACRE buys leases only 35 to 50 miles from the center of the Luling oil field. These leases give you seven-eighth of all the oil; require no drilling, and are new standard form 88 five-year commercial leases. Two years ago one man bought 400 acres from us in the present Luling oil field. He recently refused $100,000 for same. The leases we offer today for as low as 10c an acre give you the same opportunity. You can buy from 10 acres up. Write for maps and other data today. You are under no obligation to buy. Gulf Realty Co., 1036 Bedell Bldg., San Antonio, Tex.

OIL MEN, ATTENTION!

We know the oil business is "shot to pieces." We know that oil prices are at the bottom, but this ought to be the incentive to you to grab every good opportunity.

Listen to this. An oil field with tremendous possibilities has just been opened up by us. We have two wells, each 750 feet deep, sand 30 feet thick. Well Callihan No. 2 pumped 500 bbls., in 21 hours last Friday. Our other well, Stetz No. 2, has never been pumped. It can't be bailed to bottom and is now flowing over 100 bbls. daily.

The Grubstake Oil Field is in northeast part of McMullen County, 69 miles south of San Antonio, and in same locality now supplying natural gas to San Antonio.

We will sell you our two producers that will make something between 500 and 1,000 bbls. of oil. We can't know until wells are put on pump what the total will be, but you will be surprised. These wells and 58 acres surrounding will be sold on good terms to right parties. Lease bears one-eighth royalty.

If interested, write Grubstake Investment Association, 613 National Bank Commerce Bldg., San Antonio, Texas.

FOR SALE OR LEASE!

Three oil domes and several large high-grade fuller earth deposits, and an abundance of good lignite, brick clays, white clays and feldspars. They are all on Balcones faults and railroad lines. Address the owner, J. C. Melcher, R. F. D. No. 4, La Grange, Texas.

FOR SALE—Will sell you for $15,000 producing royalties with over $1,000 per month income. For particulars write, W. T. Pitts, El Dorado, Ark.

FOR SALE—Limited amount of acreage, Lonoke, Faulkner, Conway and Van Buren Counties; 35 cents per acre with 25-cent renewals. These are among the best wildcat offerings. Buy a few forties, it will pay you. W. T. Pitts, El Dorado, Ark.

FOR SALE—EQUIPMENT

TANK BOLTS
SAME-DAY SHIPMENT

5/16x¾-inch, ⅜x¾-inch, ⅜x1-inch, ⅜x1¼-inch, ½x1-inch.

Write or wire for quotation.

SHEETS—All gauges and sizes; galvanized, blue-enamel. Also corrugated and composition roofing. Plates to ¼-inch.

STEEL MFG. & WAREHOUSE CO.
1447 Genesee St. Kansas City, Mo.

LUMBER, timbers, shingles, sash, doors and millwork, structural iron, plate glass, wallboard, metal roofing and ceilings, composition roofings, hardwood flooring. Mixed house bills or straight cars shipped anywhere. High grades, great saving. Mail lists. Louisiana Lumber & Shingle Co., Dallas, Texas.

FOR SALE, practically new No. 25 ARMSTRONG Drilling Machine and tools, one thousand dollars below cost. P. O. Box 716, Moran, Texas.

MEXICO—If interested send for sample copy (no promotions). Financial and Commercial News. 507 Deere Bldg., Dallas, Tex.

FOR SALE—EQUIPMENT

FOR SALE—All kinds royalties; best investment in oil business; $1,000 will buy you two 20-acre pieces in good territory. Leave selection to me. Don't miss them. W. T. Pitts, El Dorado, Ark.

THE WESTERMAN STUFFING Box does not pack with rubber rings and will give long, continuous service without attention. If your supply dealer hasn't them, send your order direct to The Dragon Mfg. Co., Marietta, Ohio.

FOR SALE—Tank cars, clean; nine 8,000 gallon 1916 Chicago Steel Car builder, class 11-40 ton truck, delivery Chicago. Konsberg Co., 40 N. Dearborn St., Chicago.

FOR SALE—Settled production, 2,000 bbls. steel storage, 66 h. p. Oilwell boiler, etc.; two well, standard rigs, 2 gas engines, pumping daily; fine promotion lease. East Field, El Dorado, Ark, Box 226.

FOR SALE—38,280 feet of 6-inch external diameter pipe, now in the ground using as gas line. Will sell in ground or f. o. b. car; 30 cents per foot in ground, 40 cents per foot f. o. b. car. Brant & Sarber, Chanute, Kans.

FOR SALE

250 horse power Allis Chalmers oil engine and dreck connected Allis Chalmers duplex 5½"x24" pump with oiling system complete, only run short time, in A-1 condition, 12,000 barrels per day capacity, equipped with electric generator and lighting system complete.

2 miles second-hand Jones & Laughlin standard 6" line pipe.
1,800' 12" National tube line pipe.
2,000' 10" National tube line pipe.
600' 8" National tube line pipe.
1 20 horse power Type Y Fairbanks & Morse engine.
1 12 horse power Blue Line Alamo gasoline engine.
1 10" to 12" Toledo Stock and Dies.
2 6" to 8" Toledo Stock and Dies.
100 6" 3-piece River Clamps.
40 6" 2-piece River Clamps.

Write or wire The Paragon Oil Co., 309 City National Bank Building, Wichita Falls, Texas.

For SALE—First-run casing, 30 per cent discount. Complete string, extra heavy, long collar pipe for 4,000-foot well f. o. b. cars near Salina, Kans. Keys Petroleum Co., Salina, Kans.

OIL FIELD LEGAL BLANKS—Leases, assignments, releases, township plats, gauge books, run tickets, time books, well records, etc. Request on your letterhead gets free catalogue. Olds Press, 215 East Third St., Tulsa, Okla.

FOR SALE—If you have on hand drilling outfits, boilers, engines or anything useful to the industry that is not in use, don't let it deteriorate—Sell it. The Oil and Gas Journal want columns will bring you many inquiries.

FOR SALE—Five 1,665 B. H. P. gas engines, natural or producer gas, Bethlehem Steel Co., single Tandem No. 23-B-116 R. P. M., direct-connected to 1,390 K. V. A. G. E. Co. type A. T. 1 form E. generators, 2300 volts, 3 phase, 60 cycles, excitation voltage 125. Above complete with auxiliary equipment. Monongahela West Penn Public Service Co., Box 516 Fairmont, W. Va.

FOR SALE

Lathe, Greaves-Clusman
13½-in overall
30-in swing
6 ft. 8 in. between centers
Countershaft
1 Face Plate
1 Steady Rest
Vertical Hand Miller
Pratt & Whitney, No. 10
Countershaft
No tools.

The above machines are in first-class condition, having been used very little.

Write to Board of Education, Coffeyville, Kans.

FOR SALE—EQUIPMENT

FOR SALE—At Bellaire, Kansas, 8,000 feet of one-run oil well casing, [illegible] per cent off; two specially constructed portable drilling rigs with standard tools and equipment, practically new. See T. R. L. Daughtrey, Bellaire, Smith County, Kansas.

I am dismantling and offering for sale all equipment of the Great American Refinery at Jennings, Okla.; included in this equipment is 80,000 feet of 2-inch line pipe; 1 25,000-bbl. and 1 5,000-bbl. standard steel tank; four 100-H. P. stationary boilers; one 40-H. P.; two 50-H. P. oil field boilers; lead line agitators, 15 stills, etc. If interested in anything to be found in a refinery address F. A. Sanders, 420 Mayo Bldg., Tulsa, Okla.

FOR SALE—No. 27 Star Drilling Rig and mounted boiler, practically new, with lines, tools, casings, etc., near Kemmerer, Wyoming. Write to Ivan T. Jones, Kemmerer, Wyoming.

FOR SALE—Pipe shop complete, Ritetow, Okla. Threads 1-in. to 16-in. Write Box 796, Beggs, Okla.

WANTED

WANTED—To buy for cash, 500 to 2,000 bbls. production with acreage for drilling. Negotiations confidential. Write Box 200, The Oil and Gas Journal, Tulsa, Okla.

PRODUCTION Wanted—50 to 500 barrels settled. No brokers. Strictly confidential. Give full particulars. Operator, Box 388, Independence, Kans.

WANTED—A producing oil property, only partially drilled up, or a piece of proven oil land, in exchange for a good paying established business in California that requires very little attention, also one of the most beautiful homes located in the most delightful part of California. Value of business and home about one million dollars. Send full particulars with value of oil property, etc., to Harry Bickell, Capitola, Calif.

WANTED—To represent and serve non-residents who are interested in oil lands, oil leases or oil companies in Central and Southern Texas to the Gulf and Mexican border. Our facilities for this work are unsurpassed.

Our investigations and reports on prospective fields, new development and productive fields are of inestimable value to non-residents.

If interested write us immediately for terms and particulars. Best of references furnished upon request.

Address, Irvin A. Strauss, Geologist, or Jas. H. Eddy, assisant, and field man, Brady building, San Antonio, Texas.

WANTED—a producing oil property in Oklahoma with from 50 to 200 bbls. settled production, acreage partially drilled up with room for further development. Give full particulars in first letter, such as depths of wells, number of wells, offsets, underlying sands, if any, equipment, storage, price and terms. If wells are shut in or nearly so on account of present curtailment of production, this will make no difference to purchaser, but price must be based on present conditions, not what will happen one year from now. All correspondence strictly confidential. Quick action can be obtained by answering promptly. References given and asked. Address Operator, P. O. Box 643, Denver, Colo.

WANTED PRODUCTION—I have $25,000 cash and a 1,500-acre ranch located in Central Texas that I will trade for a good producing lease in Oklahoma, Texas, or Louisiana. This land is open prairie, well grassed and well watered. Small loan at 7 per cent. This land is worth what I ask and I will not consider inflated values or salt water leases. Address Box 236, Clifton, Texas.

WANTED—Labor contract to drill wells to 800 feet. Have good machine and several years' experience in oil field work. Can start 10-inch hole. A. J. Needy, Butler, Okla.

CLASSIFIED WANTS

25 CENTS per line first insertion; 15c per line each additional insertion. Cash in advance.

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WANTED

WANTED—Responsible company to drill on acreage near Mexia, East Central Texas. G. M. Schoemann, 5537 Waterman Ave., St. Louis, Mo.

FOR SALE—PETS

AIREDALES—Registered; big, husky pups; four months old. Males, $15. Ed Evans, Cherokee, Okla.

BOSTON TERRIER PUPPIES—Females; sired by Smith's Prince Chap; reasonable. Box 602, Calhoun, Mo.

BEAUTIFUL SETTER PUPS by the winner. High Speed Ben by Betty Momomey she by Momomey, II; coming three months old; $35 either sex; all papers; satisfaction guaranteed. J. H. Armstrong, Vaiden, Miss.

ENGLISH SETTER PUPPIES—Whelped in June; sire field and bench winner; also shooting dogs; write pedigrees, etc. T. D. Taylor, Bennington, Okla.

HELP WANTED

WANTED—A man experienced in heat treating Rotary tool joints. Must have had experience with high grade manufacturer. Write Box 220, The Oil and Gas Journal, Tulsa, Okla.

WANTED—A man who can qualify to meet big, successful business men who are interested in gas and oil well supplies. Address, H. L. Cartzdafner, Centropolis, Kansas.

SIDE LINE SALESMAN calling on auto accessory dealers, write us for side line that sells. The Jenkins Co., Thomasville, Ga.

WANTED—By large manufacturing corporation mechanical engineer with thorough knowledge of rotary drilling equipment. All correspondence will be treated in confidence. Address Rotary, Box 245, care The Oil and Gas Journal, Tulsa, Okla.

BUSINESS OPPORTUNITY

BROKERS desiring to handle leases in new producing oil field write me. Address Box 534, Roswell, New Mexico.

FOR SALE—Leases on four 40-acre tracts in heart of trend; 7 miles from good shallow production. $2 per acre. A bargain. Address Box 534, Roswell, New Mexico.

INTERNATIONAL Financial Service. Entire issues approved. Stocks, bonds sold. Box 471, Oklahoma City.

CAPITAL—Want party to join me with $30,000 in purchase of long established profitable manufacturing business. A-1 security. Profits will more than double the investment within year. Quick action necessary. Address Box 210, care The Oil and Gas Journal, Tulsa, Okla.

WILL pay cash for good royalty, any size. Write Box 202, The Oil and Gas Journal, Tulsa, Okla.

CAPITAL furnished, in large sums only, for expansion purposes. Record of earnings required. Write Box 201, The Oil and Gas Journal, Tulsa, Okla.

SALESMAN and organizer will raise $10,000 to $50,000 for business venture or venture that promises a worth-while future. Address P. O. Box 457, Chicago.

WANTED—Party with capital to finance the drilling of an oil well in Arkansas. Good geology. T. L. Cook, Box 307, Camden, Ark.

CONSOLIDATION—Consolidation is almost an economic demand. Production owners, there is a reason why you should consider consolidation of your interests with those of other similar companies. Equitable consolidation, free from promotion schemes, is not difficult when handled by disinterested and qualified parties.

We handle all kinds of consolidations. No advances asked; highly qualified; references given; correspondence will bring full detail before you. The Western United Syndicate, Erie, Penn.

BUSINESS OPPORTUNITY

To circularize the readers of The Oil and Gas Journal, once, it would cost more than $500. For a small sum you can reach these readers and place your proposition before them.

The classified rates are attractive. It costs but 25 cents the line for the first insertion and 15 cents the line for each additional insertion. Six words usually make a line. Cash with the order.

This useful table will help you to figure the cost of Classified Advertising in The Oil and Gas Journal. Keep it for reference:

	1 time	2 times	3 times	1 month
3 lines	$ .75	$1.20	$1.65	$2.10
4 lines	1.00	1.60	2.20	2.80
5 lines	1.25	2.00	2.75	3.50
6 lines	1.50	2.40	3.30	4.20
7 lines	1.75	2.80	3.85	4.90
8 lines	2.00	3.20	4.40	5.60
9 lines	2.25	3.60	4.95	6.30
10 lines	2.50	4.00	5.50	7.00

WOULD YOU invest $50 with hopes of making $500 profit? Write for proof of financial independence. Address Messinger, 1012 Chronicle Bldg., San Francisco, Calif.

Inquiries about leases, tools, machinery, acreage, production and royalties are constantly coming to the Classified Section. The good advertisements on the Classified Pages make it easy for us to answer these inquiries

Will sell my interest in producing company which also has small refinery which at present is shut down but could be started up within 48 hours; several hundred wells within a radius of 8 miles of refinery. This is one of the few companies that is absolutely free from debt and has a wonderful possibility. The officer who wishes to sell his interest is not a practical oil or refinery man and such a man is needed in the company. This is a great opportunity for man to come in and make the company one of the biggest in this section. Write Box 121, The Oil and Gas Journal, Tulsa, Oklahoma.

COMMON LAW COMPANIES—Organize under Declaration of Trust; many advantages; legal everywhere; managed by trustees; limited liability. No State organization fees, reports or franchise tax. Meet or do business anywhere. Better than a corporation or partnership. Booklet free. Modern Organization Co., 304 South Broadway, Los Angeles, Calif.

CAPITAL supplied, manufacturing, oil and other legitimate business, through sale of securities on reasonable commission. House established 30 years. Wiers, 115 Broadway, New York.

RARE OPPORTUNITY
PRODUCTION ALREADY ACQUIRED
For sale at a bargain, a one-twelfth interest in the Harmony Oil & Gas Trust. This trust holds a one-half interest in a large lease in the Tidioute Pool. Two wells on this lease with an open flow of approximately 13,000,000 cubic feet of gas daily. Rock pressure 500 pounds. Gas wells in Queen sand, two miles away still big producers after 40 years. If only one-fourth of the open flow were sold at price offered for the gas this one-twelfth interest should net the owner between $9,000 and $10,000 a year. Contract for sale of gas will probably be closed within the near future. Room for many more wells on what appears proven territory. J. C. Sibley, Jr., 15 Hancock bldg., Franklin, Pa. Bell phone 227; Pet. phone 421-X.

CAPITAL IN ANY AMOUNT may be raised by reaching selected investors direct by mail. Twenty years' experience planning and writing sales campaigns for financing enterprises of almost every nature. Outline your proposiion for free suggestions, samples of my work and new, enlarged, illustrated edition of my book, "How to Raise Capital." Gardner Advertising Service, 511-L Ridge, Arcade, Kansas City, Mo.

BUSINESS OPPORTUNITY

WANTED—Associates in forming a development syndicate. M. L. Wotton, 709 N. L. St., Tacoma, Wash.

I HAVE wildcat acreage, highly recommended by competent geologist, in vicinity of wells being drilled. Wells spudded in and locations blocked for drilling. I will sell for $2 per acre and up. I might furnish a 10,000-acre block for a drilling contract. W. R. German, Canadian, Texas.

WANTED—To contract with small refinery to handle their entire output of gasoline and kerosene for year 1924. Must be good quality products. Box 242, The Oil and Gas Journal, Tulsa, Okla.

LAST OPPORTUNITY to secure Elko Oil Development & Improvement Co. stock at 10c per share. Well 2,375 feet deep cased to this depth nearing production; high oil and gas content, paraffine base 45 gravity. Address communications to the company, Elko, Nevada.

WANTED, IDEAS—An established manufacturer with ample capital and modern machine shop will manufacture and market oil field supplies or specialties of merit on royalty basis. If you have an idea to sell, write Box No. 180, care The Oil and Gas Journal, Tulsa, Okla.

LETTERHEADS-PRINTING

QUALITY PRINTING—1,000 letterheads, envelopes, statements or cards, $3; 200 notesheets and 100 envelopes with name and address, $1. Samples free. Howlett's, Paris, Ill.

POSITION WANTED

TECHNICAL REFINER—Thoroughly experienced in all modern methods of refining; the construction, design and operation of refineries to operate on any American or Mexican crude with high efficiency and low operating cost. Familiar with the manufacture of all petroleum products. Highest class references. Ability and experience unquestionable. Would like to connect with large or small refining company. Box 240, The Oil and Gas Journal, Tulsa, Okla.

GRADUATE CHEMIST B. S., M. S., desires position with oil company. Specialized in hydrocarbon chemistry; qualified to do research work; good references. Now employed. Box 241, The Oil and Gas Journal, Tulsa, Okla.

Chief Geologist of large Mid-Continent oil company will consider new connection with private capital or organization on basis of salary and interest. Has several structures in Mid-Continent and elsewhere and in touch with many available producing properties. Can build large producing oil company with properties in touch with if reasonable capital is available. Inquiries from responsible parties invited. Write Box 209, The Oil and Gas Journal, Tulsa, Okla.

ELECTRIC WELDING engineer desires to conect with reliable refining or producing company. Eleven years experience; will give best of references. Write J. E. McLausson, 3120 E. Fifth St., Tulsa, Okla.

POSITION WANTED by married man 36 years of age at present employed. I have been in the Production Dept. out on a lease for the last four years as material supply man, warehouse man and timekeeper. Am well acquainted with everything in our department. Have been with same company four years. Can furnish references. Wish to change on account of wife's health. Will not consider anything in Texas. Address P. O. Box 78, Wichita Falls, Texas.

MANAGER and superintendent open for a connection with a good organization now in or anticipating entering the oil business. Am thoroughly competent to take full charge of both field and office, including drilling; either cable or rotary. Exceptional references furnished. Address Box 212, The Oil and Gas Journal, Tulsa, Okla.

POSITION WANTED

SUPERINTENDENT of tools and production and expert fisherman, desires connection with reliable oil company; years' of practical experience. Can go anywhere. Box 110, The Oil and Gas Journal, Tulsa, Okla.

REFINERY SUPERINTENDENT—desires connection with some responsible concern, has had 30 years' experience in refining, pipe line and marketing; thoroughly familiar with lub plants; will go anywhere. Address Refiner, care The Oil and Gas Journal.

The Journal has a wide circulation, going to all the oil fields, refineries, pipe line stations, gasoline plants, supply houses and business offices. It thoroughly covers the industry.

BUYS INDIA OIL RIGHTS

The Suez Oil Co. announces that it is in negotiation for the acquisition of an important interest in the Consolidated Oilfields of India, in addition to securing drilling rights over a portion of that company's oil concession in the Kundal oil field of India.

JAPANESE NAVAL OIL LOST

Cable dispatches state that the earthquake destroyed 1,500,000 bbls. of fuel oil stored for use of the Japanese navy. Much of this oil undoubtedly came from California, and in part it will likely be replaced by shipments from there.

WESTERN BANK SUPPLY CO.
Manufacturing Stationers
High-Grade Office Furniture
Filing Cabinets—Safes
Log Books—Township Plats—All Standard Forms
Lithographing Embossing
Engraving Printing
"THE HOUSE OF QUALITY"
317 West Main St. 4th and Boston
OKLAHOMA CITY TULSA OTTA

Capital Abstract & Realty Company
W. S. Bell L. B. Norton
J. F. Patterson
OKMULGEE, OKLA.

DAWSON TOWEL SUPPLY
Aprons, Towels and Jackets for Rent
Towel Service for Office $1.50 per Mo.
Phone 2185 Tulsa, Okla.

DICKEY-ASHBY-FOUNTAIN CO.
General Insurance
Derricks, Tanks and Contents Insured
1114 Atlas Life Bldg. TULSA, OKLA.

GEO. W. HENRY, Printer
"BETTER PRINTING"
Phone O-238
112 W. Second St. Tulsa, Okla.

LAFE SPEER ABSTRACT CO.
General Abstractors
J. A. Boyd, Pres. and Mgr.
11 S. Park St. Sapulpa, Okla.

SAND SPRINGS WATER CO.
Pure Spring Water
Distilled
Phone Osage 700 Tulsa, Okla.

Place your order for Ice with the
TULSA ICE CO.
Phone 12. 4 N. Detroit, Tulsa, Okla.

Okla. | Bldg., Dallas, Tex. | ville, Kans. | Needy, Butler, Okla.

Oklahoma-Kansas and Eastern Pipe Line Report

OKLAHOMA-KANSAS PIPE LINE STATEMENT FOR AUGUST

Runs

Prairie Pipe Line Co.	2,480,000	80,000
Gulf Pipe Line Co.	1,490,850	48,092
Texas Pipe Line Co. of Okla.	581,780	18,767
Magnolia Pet. Co.	862,672	27,828
Empire Pipe Line Co.	781,817	25,220
Cosden Pipe Line Co.	513,826	16,575
Sinclair Pipe Line Co.	1,024,720	33,056
*Other lines	7,750,000	250,000
Total August	15,485,665	499,538
Total July	16,955,596	546,954
Difference	1,469,931	47,416

Shipments

†Prairie Pipe Line Co.	3,536,928	114,094
Gulf Pipe Line Co.	1,201,730	38,765
Texas Pipe Line Co. of Okla.	376,611	12,149
Magnolia Petroleum Co.	727,332	23,462
Empire Pipe Line Co.	806,467	25,982
Cosden Pipe Line Co.	278,376	8,980
†Sinclair Pipe Line Co.	1,074,154	34,650
*Other lines	7,444,000	240,000
Total August	15,444,598	498,082
Total July	17,057,623	549,746
Difference	1,613,025	51,664

Stocks

*Prairie Oil & Gas Co.	23,000,000
*Prairie Pipe Line Co.	1,350,000
Gypsy Oil Co. and Gulf P. L. Co.	8,861,285
The Texas Co.	7,679,842
Magnolia Petroleum Co.	7,512,366
Empire Pipe Line Co.	2,869,178
Cosden Pipe Line Co.	2,863,542
*Sinclair Crude Oil Pur. Co.	30,725,000
Carter Oil Co.	15,796,475
Other lines	3,600,000
Total August	104,257,688
Total July	102,351,598
Difference	1,906,090

*Estimated. †Includes shipments of Texas crude oil.

Stocks do not include approximately 5,850,000 bbls. held in storage on private tank farms and leases.

Daily Average Runs

The following table shows the daily average runs of the Pennsylvania, Lima and Kentucky oil fields for the past four years:

	1920	1921	1922	1923
January	56,004	64,460	67,702	75,790
February	68,699	70,054	75,096	71,093
March	67,745	68,555	78,531	76,592
April	64,589	66,036	75,462	75,614
May	63,937	65,466	77,592	77,365
June	68,750	62,438	76,193	77,592
July	66,489	59,486	76,435	71,879
August	63,861	64,888	79,387	76,910
September	68,102	60,110	78,512	.....
October	65,066	57,688	77,209	.....
November	62,758	58,470	75,313	.....
December	60,975	61,000	73,351	.....

Daily Average Shipments

The following table gives daily average shipments from the Pennsylvania, Lima and other fields for the past four years:

	1920	1921	1922	1923
January	98,835	115,550	119,792	171,067
February	107,146	96,736	111,362	164,219
March	110,777	84,168	127,753	185,487
April	114,090	101,015	127,068	179,751
May	110,219	100,253	127,840	177,102
June	102,598	105,037	127,638	173,598
July	112,340	97,096	137,872	168,330
August	122,296	101,652	153,275	142,766
September	127,131	117,440	158,761	.....
October	122,891	105,728	165,345	.....
November	117,730	121,803	165,677	.....
December	117,201	104,023	172,861	.....

Gross Stocks

In the following table will be found the gross stocks of the various lines of the Pennsylvania, Lima and Kentucky oil fields, including oil received from other lines, at the close of each month for the past three years:

	1921	1922	1923
January	7,916,353	16,297,858	14,040,567
February	8,721,878	17,009,293	14,028,437
March	9,818,766	16,877,937	13,873,146
April	10,369,941	16,777,842	13,737,575
May	11,224,694	16,948,962	13,815,622
June	12,328,126	16,810,169	14,541,253
July	13,798,698	16,669,286	14,645,584
August	15,155,633	16,235,229	14,770,539
September	15,525,750	16,228,545	.....
October	15,761,079	15,757,746	.....
November	14,971,071	15,171,972	.....
December	15,854,741	14,323,765	.....

Franklin Pipe Line Co.

The following table exhibits the condition of the Franklin Pipe Line at the close of business for the months named and not counted in the stocks and averages reported above:

1922—	Receipts	Shipments	Stocks
August	3,190.47	1,196.98	27,348.91
September	2,382.56	3.31	20,728.16
October	3,368.58	4,783.61	29,313.13
November	3,052.75	2,230.18	30,135.70
December	3,076.36	1,292.84	31,919.22
1923—			
January	2,798.55	2,461.36	32,256.41
February	2,692.93	932.33	34,017.01
March	2,978.88	12,417.00	24,578.89
April	3,529.12	3,064.09	25,053.92
May	3,538.73	4,856.42	23,736.23
June	2,927.71	4,743.78	21,920.16
July	2,996.64	1,471.57	23,445.23
August	3,199.07	3,769.34	22,874.96

The Illinois Field

The following table gives the report of the Illinois Pipe Line Co. in Illinois:

Gross stocks, Sept. 1	2,360,624.79
Runs from wells	564,688.33
Other receipts	110,482.20
Regular deliveries	230,959.21
Other deliveries	170,067.26

The amount of Illinois oil run by the Tide Water Pipe Line Co. in August was 30,059.61 barrels, and deliveries were 136,193.61 barrels. Adding these figures to those of the Illinois Pipe Line Co., makes the runs and deliveries from the Illinois Field as follows:

1922—	Runs	Deliveries
August	648,827.26	370,461.56
September	595,603.99	407,333.79
October	618,459.82	464,005.38
November	566,508.03	434,681.97
December	552,069.33	391,868.37
1923—		
January	599,239.86	470,958.84
February	496,421.79	382,566.83
March	635,006.81	472,920.76
April	521,910.87	423,548.43
May	624,107.98	523,515.00
June	582,511.82	509,137.77
July	594,663.42	489,269.17
August	594,747.94	367,152.82

The Tide Water Pipe Co., Ltd., also delivered in August 148,752.27 barrels of Oklahoma oil. The total deliveries of all grades by the Tide Water were 482,653.58 barrels.

Runs From Wells

In the following table will be found the regular receipts from wells by various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, '23	Aug., '23
Nat. Transit	205,271.26	206,573.94
S. W. Pa. P. L.	85,547.38	85,306.54
Eureka P. L.	391,285.43	410,033.87
Buckeye P. L. (Macksburg)	274,862.82	275,646.49
Buckeye P. L. (Cleveland)	20,234.29	19,886.44
Buckeye P. L. (Lima, etc)	147,393.66	147,768.37
Indiana P. L.	15,806.29	16,666.55
Cumberland P. L.	289,117.45	436,995.55
N. Y. Transit	16,426.42	16,733.74
Tide Water P. L.	169,959.63	166,005.44
Pure Oil P. L.	193,290.55	191,968.03
Emery P. L.	33,359.18	34,090.37
Paragon Ref.	.....	.....
Indian Ref.	330,366.95	327,828.64
Swiss P. L.	.....	1,118.94
Pittsburgh P. L.	10,251.17	9,462.70
Riggs Ref.	6,240.68	6,694.44
Paragon Dev.	34,848.70	31,436.65
Total	2,228,260.86	2,384,206.70
Daily average	71,879.38	76,909.89

Note—Indian Refining Co. also reported other receipts of 96,417.41 bbls. Paragon Refining Co. had other receipts of 156,556.10 bbls. Paragon Development Co. had other receipts of 5,401.52 bbls. Pittsburgh Pipe Line had other receipts of 4,667.06.

Petroleum Deliveries

The following tables exhibit the shipments or regular deliveries of various pipe lines in New York, Pennsylvania, West Virginia, Ohio, Kentucky and Indiana for July and August:

	July, '23	Aug., '23
National Transit	422,987.76	408,858.25
S. W. Pa. P. L.	277,415.94	294,045.52
Eureka P. L.	130,329.66	118,242.13
Buckeye P. L. (Macksburg)	83,321.65	80,467.88
Buckeye P. L. (Cleveland)	1,326.89	1,813.13
Buckeye P. L. (Lima, etc)	859,327.54	684,934.33
Indiana P. L.	993,258.99	992,697.13
Cumberland P. L.	164,609.79	170,466.72
Southern P. L.	74,561.48	.....
Crescent P. L.	120,808.72	93,923.66
N. Y. Transit	872,734.59	476,997.93
Northern P. L.	114,617.76	51,021.98
Tide Water P. L.	162,099.12	197,467.70
Pure Oil P. L.	188,224.23	161,150.43
Emery P. L.	33,379.52	35,794.81
Paragon Ref.	157,863.75	165,648.92
Indian Ref.	507,240.47	425,696.11
Swiss P. L.	.....	.....
Pittsburgh P. L.	14,150.16	10,318.71
Riggs Ref.	.....	.....
Paragon Dev.	39,974.19	38,266.13
Total	5,218,232.60	4,425,746.46
Daily average	168,330.09	142,765.99

Gross Stocks

The gross stocks held by various pipe lines in the oil producing section of New York, Pennsylvania, West Virginia, Ohio, Indiana and Kentucky at the close of July and August were as follows:

	July, '23	Aug., '23
National Transit	1,186,334.36	1,226,516.31
S. W. Pa. P. L.	842,268.68	905,481.30
Eureka P. L.	1,911,916.65	1,881,853.01
Buckeye P. L. (Macksburg)	563,439.40	510,371.61
Buckeye P. L. (Cleveland)	15,147.16	14,727.36
Buckeye P. L. (Lima, etc.)	4,142,367.29	4,054,312.99
Indiana P. L.	669,666.12	612,502.19
Cumberland P. L.	704,949.90	729,183.84
Southern P. L.	836,050.71	950,531.42
Crescent P. L.	80,556.49	73,393.65
N. Y. Transit	1,904,719.75	2,066,344.44
Tide Water P. L.	.....	.....
Northern P. L.	972,254.68	930,932.23
Pure Oil P. L.	291,599.52	288,598.09
Emery P. L.	6,816.20	5,589.54
Paragon Ref.	183,154.78	167,423.03
Indian Ref.	319,472.69	302,234.45
Swiss P. L. Co.	.....	3,363.31
Pittsburgh P. L.	7,348.66	6,864.37
Riggs Ref.	259.91	1,141.96
Paragon Dev.	11,751.59	10,384.04
Total	14,645,583.54	14,770,539.01
Increase	104,330.05	124,955.06

Grades of Oil

The following table shows the amount of the different grades of oil held by the eastern pipe lines at the close of July and August, showing the gross stocks of the above fields:

	July, '23	Aug., '23
Pennsylvania	3,577,894.12	3,635,614.79
Lima	796,589.34	844,117.73
Kentucky	1,931,679.77	1,978,778.72
Mid-Continent	8,092,385.07	8,068,066.64
Illinois	247,035.24	243,960.23
Total	14,645,583.54	14,770,539.01

PRODUCTION BY MONTHS AND DAILY AVERAGE PRODUCTION IN THE U. S. FOR 12 MONTHS

		California	Oklahoma	Texas	Kansas	Arkansas	Louisiana	Wyoming Montana	Other Fields	Totals
1922—										
September:	Month	12,208,140	12,599,520	8,830,920	2,360,238	688,740	2,796,180	2,447,310	3,438,240	45,369,194
	Daily average	406,938	419,984	294,364	84,294	22,958	93,206	81,577	114,608	1,512,298
October:	Month	13,419,432	13,222,161	9,196,994	2,638,875	740,797	2,782,994	2,856,805	3,550,122	48,358,180
	Daily average	432,885	426,521	296,774	85,125	25,187	89,774	92,155	114,522	1,560,543
November:	Month	14,035,527	12,613,569	8,676,000	2,646,091	1,023,450	2,529,150	2,908,800	3,205,290	47,637,877
	Daily average	467,818	420,452	289,200	88,261	34,115	84,305	96,960	106,843	1,587,929
December:	Month	15,426,810	13,185,416	8,707,921	2,649,800	1,596,500	2,462,321	3,108,566	3,149,445	50,288,189
	Daily average	497,639	425,336	280,901	85,330	51,500	79,461	100,286	101,595	1,622,198
1923—										
January:	Month	16,457,445	13,328,574	8,881,004	2,826,611	2,317,002	2,428,013	3,124,707	3,423,516	52,786,872
	Daily average	530,885	429,957	286,484	91,181	74,742	78,328	100,797	110,436	1,702,802
February:	Month	16,426,759	12,045,030	7,663,993	2,748,660	2,258,984	1,084,008	3,023,193	2,907,340	48,066,567
	Daily average	586,670	444,465	273,714	91,622	80,678	67,286	104,364	104,405	1,716,378
March:	Month	19,608,192	13,955,828	8,463,782	2,847,040	2,970,575	2,312,600	3,274,778	3,464,529	56,896,324
	Daily average	632,526	450,188	272,993	91,840	95,825	74,600	105,638	111,759	1,835,501
April:	Month	20,695,959	14,399,610	8,403,240	2,768,052	2,766,000	2,160,300	3,584,048	3,381,340	58,058,549
	Daily average	689,865	479,987	280,108	89,292	92,200	72,010	119,347	109,378	1,935,285
May:	Month	21,535,365	15,668,782	8,932,000	2,805,750	3,389,000	2,175,000	3,566,600	3,546,400	61,608,897
	Daily average	694,689	505,122	288,129	93,536	109,322	70,161	115,051	114,400	1,987,316
June:	Month	22,667,106	15,572,730	8,817,000	2,797,830	3,078,990	1,981,800	3,385,600	3,401,400	61,702,456
	Daily average	755,570	519,091	293,900	93,261	102,633	66,066	122,853	113,380	2,056,748
July:	Month	25,262,082	15,260,184	10,662,000	2,448,566	2,859,000	2,012,000	4,143,400	2,788,600	65,435,832
	Daily average	814,906	492,264	343,935	78,986	92,226	64,903	133,657	89,955	2,110,172
August:	Month	26,440,005	14,049,076	11,454,000	2,316,320	3,113,000	2,078,000	4,180,000	3,473,300	67,103,701
	Daily average	852,903	453 196	369,484	74,720	100,419	67,032	134,861	112,043	2,164,632
	Twelve months	224,179,838	165,890,451	108,597,864	31,853,923	26,842,038	26,803,366	39,503,006	39,629,582	663,300,668
	Total daily average	611,452	454,494	297,528	87,271	73,539	73,434	108,227	108,547	1,817,262

AVERAGE WEEKLY IMPORTS OF PETROLEUM AT PRINCIPAL UNITED STATES PORTS

	Atlantic Ports						Gulf Coast Ports				Total
Av. Bbls. per Week	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	All Ports
March	132,500	102,000	404,027	169,600	281,316	1,089,443	371,400	223,358	290,000	60,000	1,044,358	2,133,801
April	133,333	167,250	253,500	151,250	118,300	823,634	338,750	255,000	253,750	56,000	1,123,500	1,947,134
May	114,665	128,750	256,500	109,250	153,750	763,915	335,250	227,500	298,500	63,500	924,750	1,688,665
June	62,800	84,200	358,200	153,400	161,800	757,600	301,000	228,400	212,400	45,800	787,600	1,545,200
July	71,750	116,250	451,500	113,000	318,750	970,250	367,750	280,000	208,250	23,000	879,000	1,849,250
August	116,065	89,113	374,613	102,970	197,127	879,888	338,485	266,224	234,388	45,633	1,295,730	2,175,618

AVERAGE WEEKLY RECEIPTS OF CALIFORNIA OIL AT ATLANTIC AND GULF PORTS

	Atlantic Ports						Gulf Coast Ports				Total	Total
Av. Bbls. per Week	Baltimore	Boston	New York	Philadelphia	Others	Total	Galveston	New Orleans Baton Rouge	Pt. Arthur Sabine Pass	Tampa	Total	All Ports
May	114,666	72,000	312,500	191,000	321,333	1,011,499	.....	100,000	86,000	.....	186,000	1,364,665
June	164,200	32,000	641,300	165,200	161,800	1,164,200	.....	132,800	.....	.....	132,800	1,297,000
July	110,750	18,750	517,000	135,250	121,750	903,500	.....	139,750	.....	.....	139,750	1,043,250
August	116,067	51,709	688,485	222,873	151,970	1,231,104	.....	24,612	219,030	.....	243,642	1,474,746

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Note those two characteristics— "withstanding high temperatures and reducing the deposit of carbon to a minimum."

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July	110,750	18,750	517,000	185,250	121,750	953,500	.....	139,760	.....	.....	139,760
August	116,067	51,709	688,435	222,873	151,970	1,231,104	.....	24,612	219,030	.....	243,642

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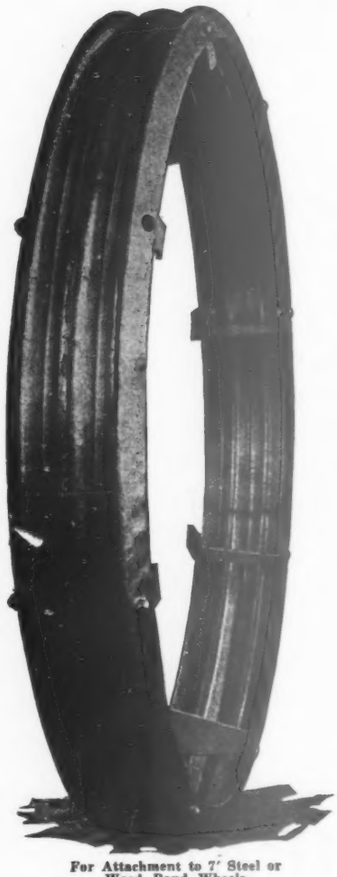

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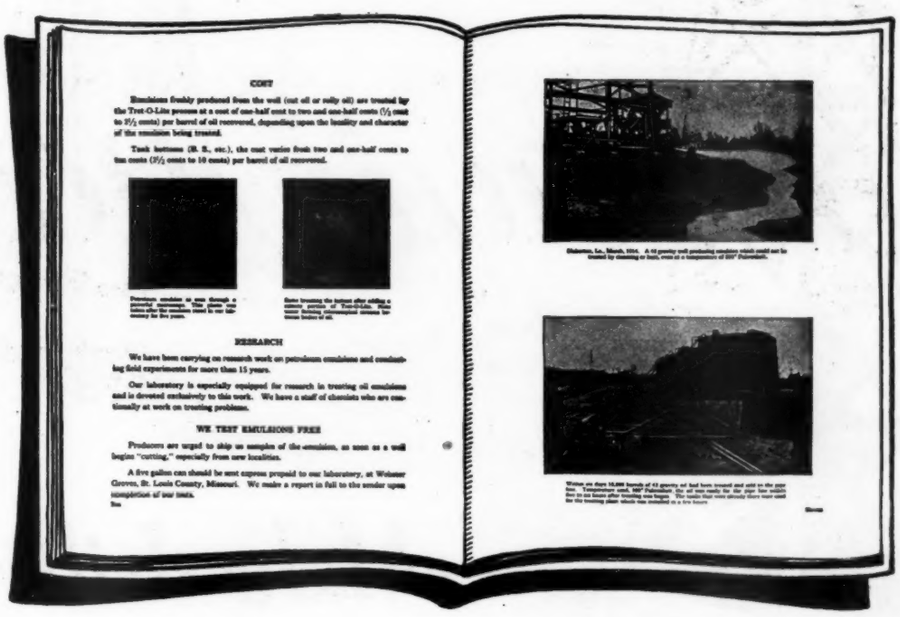

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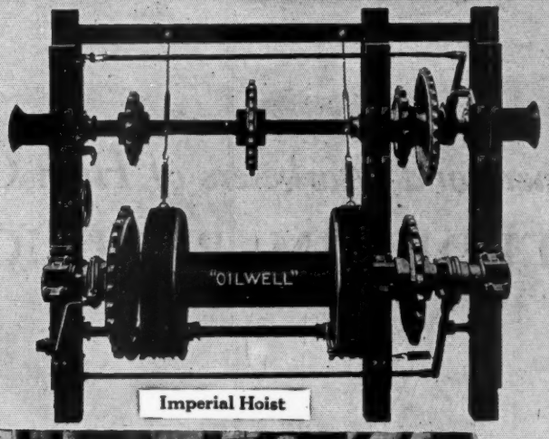
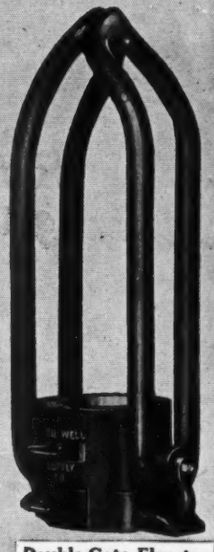


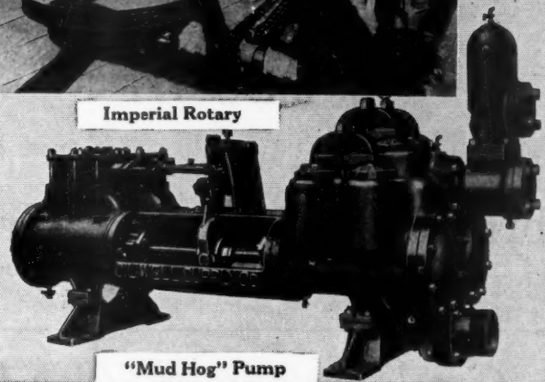
Imperial Hoist



Double Gate Elevator

Imperial Rotary

Imperial Tool Joint



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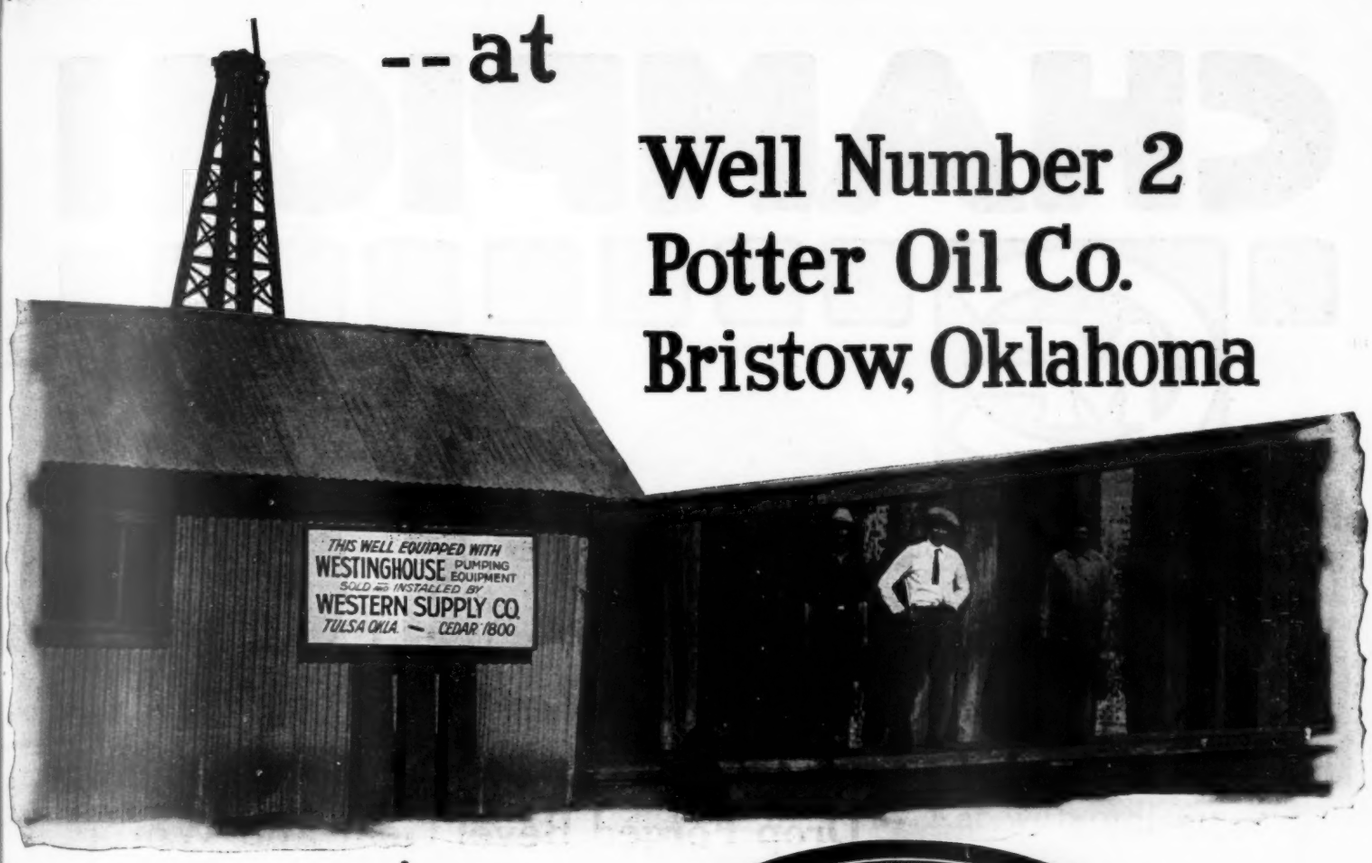

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Drop Forged Bevel Gear and Worm

It's conceded that there are easier ways to make this bevel gear and worm than drop forging it. Fact is, those ways are the commonly accepted methods of making such things.

Through common sense thinking plus sound engineering skill and seasoned technic at the forging hammer this bevel worm and gear has been drop forged. By having this bevel gear and worm drop forged the manufacturer who uses it in his product meets the desires of his customers for the sturdy give and take strength of steel to meet stresses and strains of peak loads and emergencies. He forestalls gear stripping. He obliterates delay. He cuts production cost. He makes his equipment a better investment because he makes it a steadier producer. Isn't it such qualities as this that you count on to raise your product to a point where it is preferred above other products of its kind? You depend on such qualities as these to make a sale at a profit. Boiled down the very success of your business depends upon the productive ability of your products in the hands of their users.

Manifestly the problems of drop forgings, complicated or difficult parts, are being solved so that they stay solved. Champion offers you the co-operation of their engineers and their experimental laboratories in bettering your products in replacing weakness with strength and dependability. Take this bevel gear and worm, 23½ inches in diameter, 10 inches high, weighing 308 pounds. Note the cone. Surely it must indicate to you something of the latitude in drop forgings.

Waiting for your customers to tell you through their kicks or inconveniences that you need drop forgings in your product isn't going to make your products any better in time to do you any good from a business principle or profit standpoint. Do the thing yourself—set a date for a Champion Engineer to call and let us know. There will be no obligation.

The Champion Machine & Forging Co.

3695 East 78th Street, Cleveland, Ohio

New York Office—30 Church St. Philadelphia Office—Bourse Bldg.

Detroit Office—705 Ford Bldg.

DROP FORGINGS

IF imitation is the sincerest form of flattery, then the Kelly Kat is the most flattered truck tire that has ever been built.

The Kelly Kat was the first non-skid cushion truck tire adaptable to all sizes and types of commercial vehicles. Its popularity made it almost immediately the dominant factor in the truck tire field, and after six years it is still the leader.

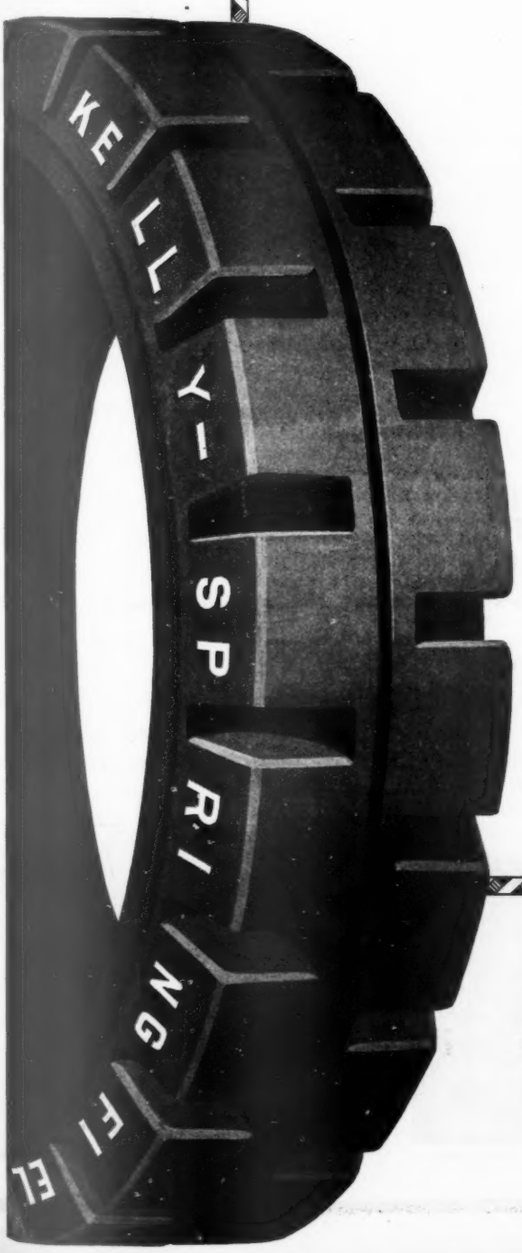
This popularity has resulted in the development of similar types of tires by other manufacturers who have found themselves unable to compete against the Kelly Kat with ordinary solids.

However, to build a tire that *looks like* the Kelly Kat is one thing—to make one that will give the service of the Kelly Kat is another.

Remember there are no Caterpillar Tires but Kelly Kats—and—

It costs no more to buy a Kelly

KELLY-SPRINGFIELD TIRE COMPANY
250 West 57th Street New York, N. Y.



KELLY
TRADE MARK REG.
KATS
THE TIRES WITH NINE LIVES

2 ESPECIALLY DESIGNED Williamsport Lines

Special Rotary 6x31

This line was especially created by WILLIAMSPORT to answer the need for an extra-flexible line for rotary drilling. Small inside wires give extreme flexibility, while the larger outside wires resist wear.

It was introduced some time ago in 7/8" diameter and later in 1", and has given such excellent service that today more than 75% of our rotary customers are using it.

Muskogee Special 6x19

This line was especially designed for cable tool drilling, its idea being to provide a line as flexible as the 6x19 Standard drilling line, yet with larger outside wires to better resist frictional wear.

Many drillers have recognized the advantages of these larger outside wires and are using this type of line exclusively for their cable tool operations.

For exceptionally satisfactory service in rotary drilling we can unreservedly recommend this line, particularly in the 1" diameter. It is offered in Crucible Cast Steel, Mild Plow, Plow, or Improved Plow.

Made from wire drawn in our wire-drawing plant, and in 4 grades of steel. Identified, as are all WILLIAMSPORT Lines, by our Telfax ("Tell Facts") Tape Marker, running through the core.

WILLIAMSPORT WIRE ROPE COMPANY
Kennedy Bldg., Tulsa, Okla.

Houston Graham Mildred Shidler Blackwell Ardmore Holdenville Okemah Muskogee Smackover Arkansas City El Dorado Shreveport Casper

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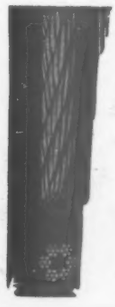
Standard 6x19

Muskogee Special 6x19

Special Rotary 6x31

Haru Laid 6x7



Sand Line 6x7

Tubing, Casing, Pumping Beam, etc., 6x19

After all, what users say counts most!
"We are very pleased to say that the motor driven Chicago Pneumatic Air Compressor, which we have had in constant operation since 1917, has been very satisfactory. We have had an excellent opportunity to compare the services of your compressor with those of two other makes, which we have, and can say without hesitation that we have gotten very much better service and our repairs have been very much less."
Photostat copy on request.

CP Compressors

"SIMPLATE" Indestructible Flat Disc Valves: Exceptionally large bearing surfaces: Totally enclosed frame construction: Automatic lubrication throughout: Automatic regulation: These are the outstanding features which enable Chicago Pneumatic Air Compressors to develop high volumetric efficiency with low power consumption per unit of air actually delivered.

Men who know appreciate the refined development of the Chicago Pneumatic Air Compressors. Records of their achievements prove their efficiency and economy. All the 500 types and sizes are essentially the same machines, modern in every detail, each embodying all of the distinctive features.

There is a type and size for your requirement, with a satisfactory performance record. Write for Bulletin.

Chicago Pneumatic Tool Company

6 East 44th Street, NEW YORK, N. Y.

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Canadian Pneumatic Tool Company, Ltd., Montreal, manufacturers of Chicago Pneumatic products in Canada.

C 140

BOYER PNEUMATIC HAMMERS · · LITTLE GIANT PNEUMATIC AND ELECTRIC TOOLS
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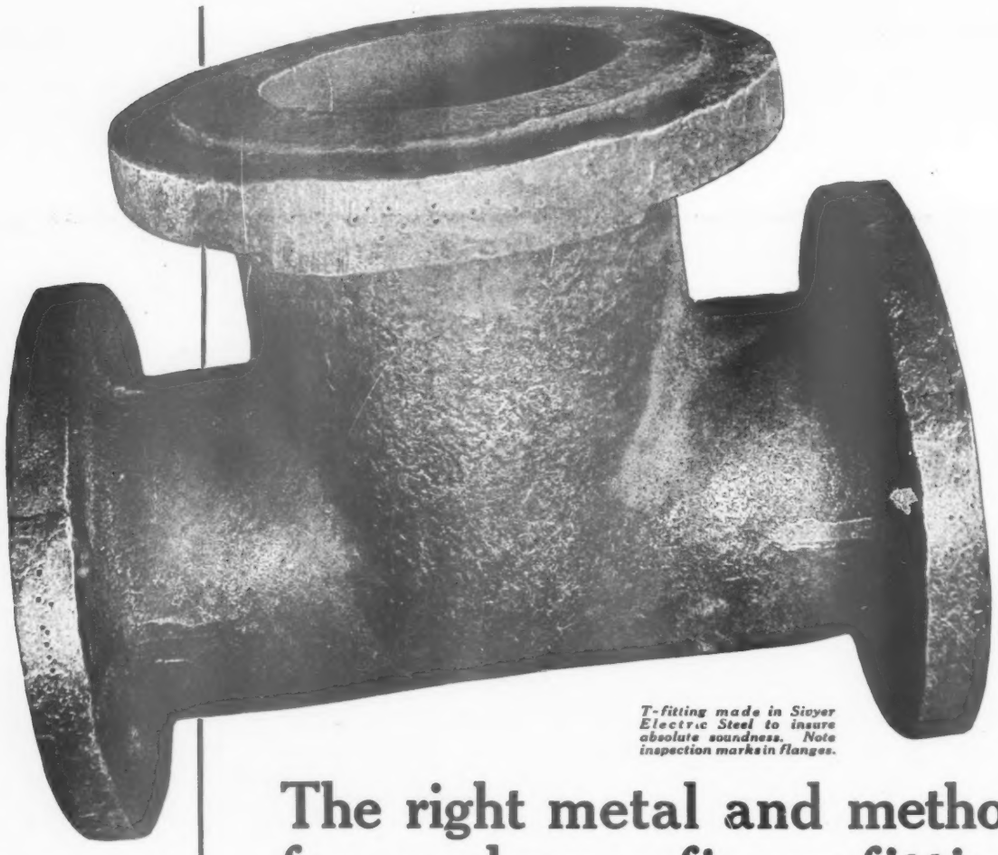
CHICAGO *The Compressor with* **PNEUMATIC** *the Simplate Valve*



T-fitting made in Sivyer Electric Steel to insure absolute soundness. Note inspection marks in flanges.

The right metal and methods for modern refinery fittings

THE now common tendency to use steel fittings in modern refinery construction has greatly increased the use of Sivyer Steel in this field. The T-fitting shown above is an example of the heavier kind of castings now made in Sivyer Electric Steel in order to insure strength, soundness and an absolutely honest union of flange with body. Five hundred and seventy-six Sivyer nozzle fittings recently furnished for use in the mid-continent field illustrate the uniform machining quality assured by Sivyer metal and methods. Every one of these castings was tested under high hydrostatic pressure after rivet and bolt holes had been drilled and the top flange had been faced. Not one was rejected. The user writes that this record has never been approached in his experience by any other maker of steel castings.

Sivyer castings can be forged and welded

SIVYER (S) CASTINGS

DEPENDABLE

Send Blue Prints

During the last seven years, many manufacturers who were having difficulty with forged parts—or with ordinary steel castings—have come to us for a solution of their difficulties.

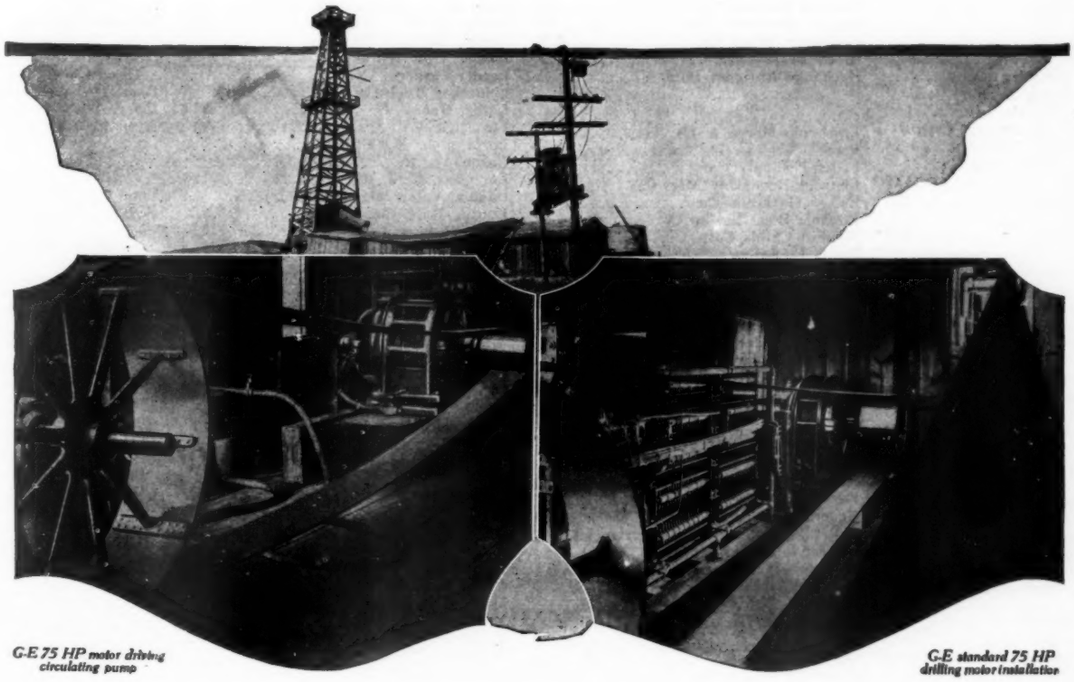
Very often, of course, the manufacturer's problems arise from the shortcomings of ordinary cast steel. When certain sections of a design vary sharply in thickness, it is difficult to cast them in ordinary steel. Open hearth practice does not permit the high temperature necessary for pouring extremely thin sections or intricate design.

With Sivyer Electric Steel and with Sivyer developments of molding practice, many things can be done that are impossible to open hearth steel.

If you are having trouble with parts that in the past have been hammer forged, or cast in ordinary steel, send us your blue prints together with a statement of your difficulties. We will be glad to study the problems involved and recommend possible solutions, without obligation on your part.

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE



G-E 75 HP motor driving circulating pump

G-E standard 75 HP drilling motor installation

This equipment paid its cost on the first well drilled

ONE of the largest oil companies operating in the Mid-Continent fields saved $3,655 over the estimated cost of steam drilling on the first well drilled with General Electric equipment. This included initial cost, installation, depreciation, water, fuel, oil, electric power and saving in time of shift from drilling to pumping.

The equipment and installation cost was approximately 65% of the amount saved on the first well.

The Empire Gas & Fuel Company says: "Drillers, as a rule, do not take kindly to changes, but we have yet to find one who has operated an electric drilling equipment who has not become a convert."

G-E two-speed oil well motors are consistently proving their worth and versatility for pumping operations, and also in emergency drilling with small tools and for pulling casing. For drilling rigs, however, it is customary to use the separate equipment shown, installing a pumping motor as each well is completed.

The G-E oil well specialist in your district will give you further information about electric motor drive for operating oil wells. Technical papers 503 and 504 mailed on request.

General Electric Company
Schenectady, N. Y.
Sales Offices in all Large Cities

GENERAL ELECTRIC

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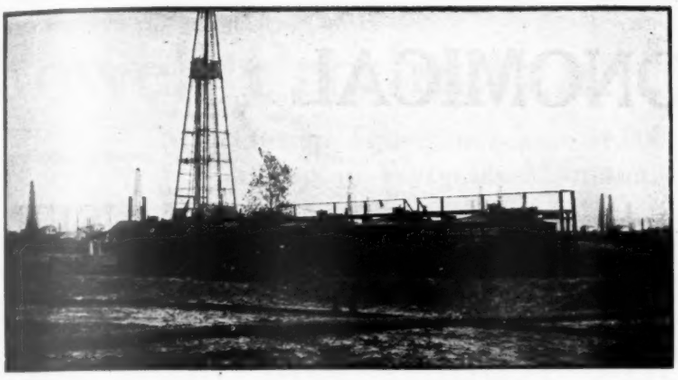
PERFECTION VAPOR PRESSURE TANKS
WOOD, AND BOLTED STEEL TANKS



A Battery of Perfection Tanks in an Oklahoma Field

Black, Sivalls & Bryson attribute their success in no little measure to the fact they have maintained service stations all over the country. In every active field are representatives who are more than willing to help producers figure on their lease requirements. Better still, there are sample stocks of tanks in all the usually required sizes.

A prime requisite for the reduction of evaporation losses under present storage conditions is vapor tight tankage.

Report U. S. Bureau of Mines, Serial No. 2531

We are glad to note the U. S. Bureau of Mines agrees with the contention we have been making the past two years.

The only sure way of preventing evaporation losses is to have vapor tight tanks.

Furthermore vapor tight tanks should have relief valves. Listen to this from the same report:

> **In order to provide for the necessary release of pressure or vacuum, each tank is equipped with proper pressure and vacuum relief valves; it prevents any distortion or rupture to the tank roof due to expansion and contraction of the vapors in the tank caused by variations in atmospheric conditions.**

That's exactly the description of the Perfection Vapor Pressure Tank which Black, Sivalls and Bryson have designed to combat storage losses.

You can hardly pick on other brands of tankage when the Perfection follows the recommendations of the U. S. Bureau of Mines so closely. And if that is not argument enough, simply ask anyone who is using them. He will tell you his Perfections paid for themselves long ago.

Write today for your copy of "The Proof of the Pudding". It's free.

Black Sivalls & Bryson
INC.
BARTLESVILLE ~ OKLAHOMA

Branch offices in all principal active fields

TRANSIT POWER PUMPS
ARE ECONOMICAL

If steam costs you too much money—use TRANSIT POWER PUMPS as the solution.

That's the way many large refining and pipe line companies are doing.

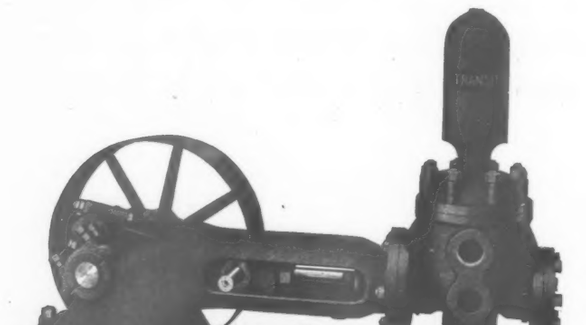


Fig. 1032

2½ x 6" Horizontal Single Power Pump with bed plate for 500 lbs. working pressure. 23 barrels per hour. 2" suction and 2" discharge connections.

From our smallest single power pump illustrated above, to the largest horizontal triplex power pumps for pipe lines, the quality is the same---TRANSIT quality runs straight through the entire line.

Your "Conditions" will bring our "Proposal"

NATIONAL TRANSIT
PUMP & MACHINE CO.
OIL CITY, PENNSYLVANIA

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